AMSTRAD FIDELITY

VMC100
CAMCORDER
SERVICE MANUAL

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Video/Audio/Servo/System Control Schematic Diagram	Broad Sheet

TECHNICAL SPECIFICATION

Power Source	: DC 10V
Power Consumption	: 5.7W
Battery	: 10V 1.1Ah Lead-acid recha
System	: PAL Colour
Tape Format	: VHS-C Compact
Recording Standard	: VHS 625 Lines 50 fields/se EIAJCP-510
Tape Speed	: 23.4mm/sec (SP) 11.7mm/sec (LP)
Recording Time	: 30 minutes using EC-30 tap 60 minutes using EC-30 tap
Lens	: Pan Focus Automatic Iris
Maximum Aperture	: F1.4
Focal Length	: 9mm
Image Sensor	: ½ inch CCD Charge Couple Device
Image Resolution	: 270k Pixels
Sensitivity	: 10Lux
Illumination Range	: 10 to 100,000Lux
Signal to Noise Ratio	: 42dB min.
Horizontal Resolution	: 230 TV Lines
View Finder	: 200mm Optical 10 degree
Microphone	: Condenser (uni-directional)
Audio Sensitivity	: -70 dBV
Operating Temperature	: 0 — 40 Degress Centigrade
Storage Temperature	: -20 — 40 Degrees Centigra (-20 — 25 Degrees Centigr long term battery storage)
Dimensions	: 230 x 110 x 120mm (VMC1 110 x 30 x 65mm (Battery)
Weight	: 800g (VMC100) 330g (Battery)

IMPORTANT NOTES

A TEST JIG IS REQUIRED FOR ALL ALIGNMENTS.
DO NOT ATTEMPT TO MAKE ANY ADJUSTMENTS WITHOUT THE TEST JIG.
Full Alignment Instructions are available to authorised dealers on request through Amstrad PLC.

NO UNAUTHORISED PERSON SHOULD ATTEMPT TO REMOVE THE CASE OF THIS EQUIPMENT.
ANY ATTEMPT TO REMOVE THE SECURITY SEALS WILL AUTOMATICALLY INVALIDATE ANY WARRANTIES.

Mains Power Adaptor/Charger subject to replacement only if faulty. Replacements may be obtained from authorised Amstrad Spares Dealer.

IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected to confirm the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

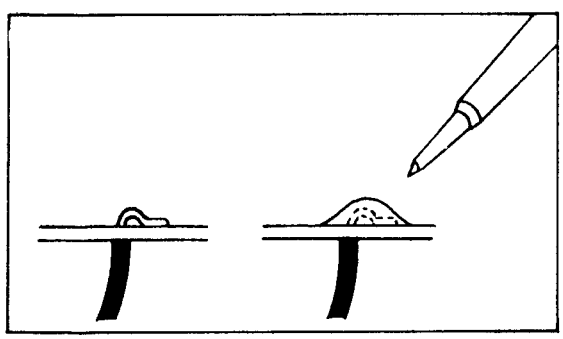
Precautions during Servicing

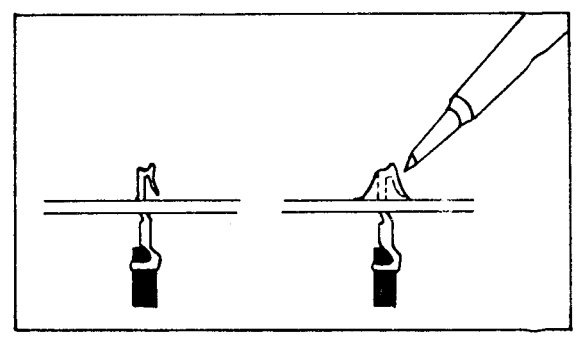
1. Locations requiring special caution are denoted by labels and inscribed on the cabinet, chassis and certain parts of the product. When performing service, be sure to read comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚡ symbol parts are critical for safety.
   Replace only with specified part numbers.

3. Use specified internal wiring. Note: especially :
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

4. Use specified insulating materials for hazardous live parts. Note especially :
   1) Insulating Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors





4. Leakage current test

Confirm specified or lower leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).

Measuring Method : (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts.

Use an AC voltmeter to measure across both terminals of load Z.

See figure and following table.

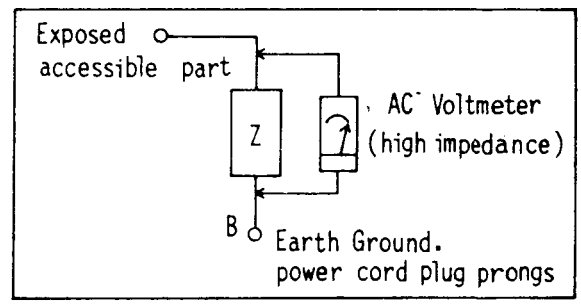


Table 2 : Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to :
110 to 130 V	USA & Canada	0.15F 1.5k	1≦0.5 mA rms	Exposed accessible parts
110 to 130 V 200 to 240 V	Europe Australia	2 KΩ	1≦0.7 mA peak 1≦2 mA dc	Antenna terminals
		50 KΩ	1≦0.7 mA peak 1≦2 mA dc	Other terminals

Note : This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

SAFETY CHECK AFTER SERVICING

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Insulation resistance test
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exploded parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table below.

2. Dielectric strength test
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, etc.). See table below.

3. Clearance distance
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table below.

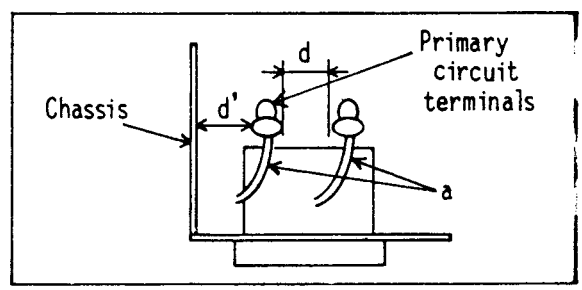
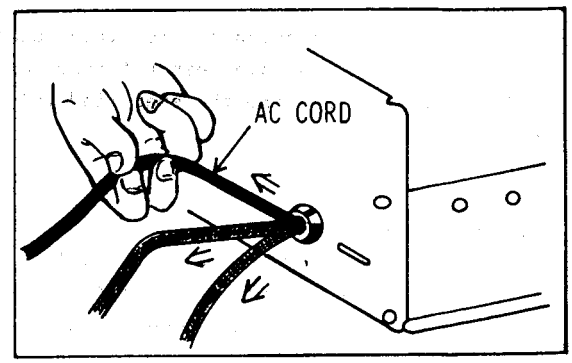


Table 1 : Ratings for selected ares

AC Line Voltage	Region	Insulation Resistance	Dielectric	Clearance
110 to 130 V	USA & Canada	---	900 V 1minute	≧3.2 mm
110 to 130 V	Europe	≧10 MΩ	3 kV 1minute	≧4 mm (d)
200 to 240 V	Australia	/500 V DC		≧6 mm (d')

Note : This table is unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.



5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely around the terminals before soldering.

6. Observe that wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.)

7. Check that replaced wires do not contact sharp edged or pointed parts.

8. When a power cord has been replaced, check that 10-15 kg of force in any direction will not loosen it.

9. Also check areas surrounding repaired locations.

4. STANDARD MAINTENANCE

4-1. Cleaning

4-1-1. Cleaning of Video Head (Fig. 1)

Head cleaning by using a chamois skin.

1) Remove the right side cabinet.
2) Put on a glove (thin type) to avoid touching the upper drum and lower drum with bare hand.
3) Put a few drops of alcohol on the chamois skin, and by slightly placing it against the head trip, allow the upper drum to turn the right and left.

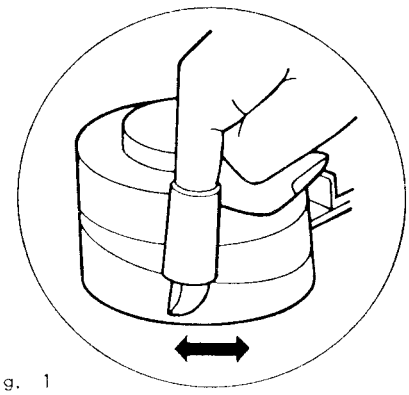


Fig. 1

= Remark =

a) The video head is of very hard material, but since it is very thin, avoid cleaning it vertically.
b) Wait for the cleaned part to dry out before operating the unit.
c) Do not reuse the stained chamois skin.

4-1-2. Cleaning of Audio Control Head (Fig. 2)

Head cleaning by using a chamois skin.

1) Remove the right side cabinet.
2) Put a few drops of alcohol on the chamois skin, clean up the audio control head, being careful not to damage the upper drum and other tape running parts.

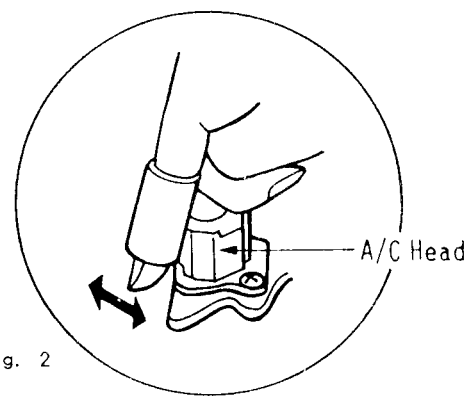


Fig. 2

= Remark =

a) Avoid cleaning audio control head vertically.
b) Wait for the cleaned part to dry well, before operating the unit.

4-2. Upper Drum Replacement

1) Take off 8 solders (mark ●) of P.C.B. and remove 2 screws (A). (Fig. 3)

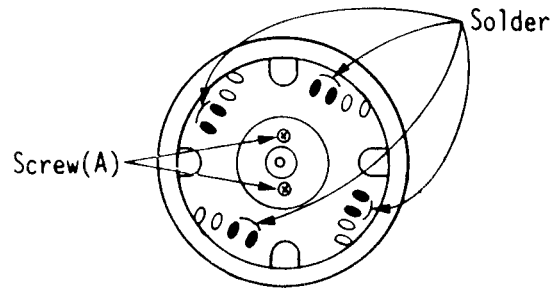


Fig. 3

2) Take off Upper Drum. (Fig. 4)

a) If Upper Drum is not removed smoothly, use Upper Drum Removal Jig (VTC-8120).
b) After set jig to Upper Drum with 2 screws (A), lift up by screw (B).

= Remark =
2 screws (A) : Screw up by hand.
(If these screws are screwed up powerfully by driver, it may have a bad influence on Video Head.)
Screw (B) : Screw up by driver.

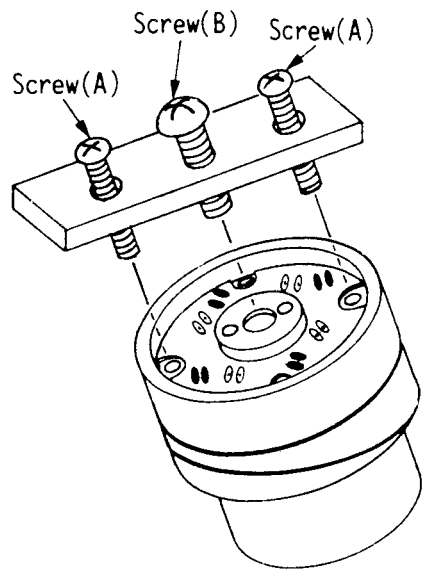


Fig. 4

3) Replace with new Upper Drum and set P.C.B. with soldering (8 points).
4) After replacement, should be comfirmed MECHANICAL ADJUSTMENT (Chapter 5).

4-3. Loading Disk (S) (T) Positioning

Replacement of Loading Disk shall be done on "stop" mode.

1) Take off Loading Motor beforehand, turn Loading Disk (S) (T) in the direction of unloading.
2) Set hole of chassis and grooves of Loading Disk (S) (T) on an axis. (Fig. 5)

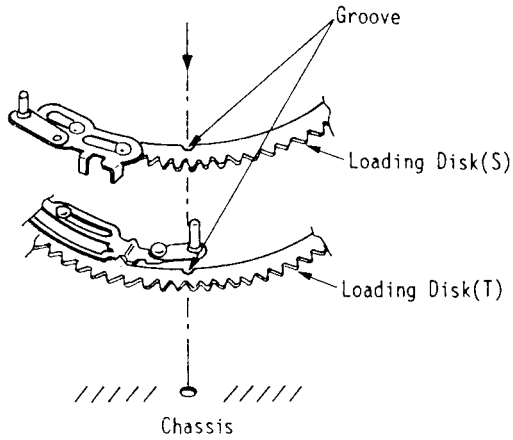


Fig. 5

= Remark =

a) At setting of Loading Disk (S) (T), change position of Eject Lever. (Fig. 6)
b) Set each hole position of Timing Gear, Idle Gear 2 and Chassis by setting pins. (Fig. 6)

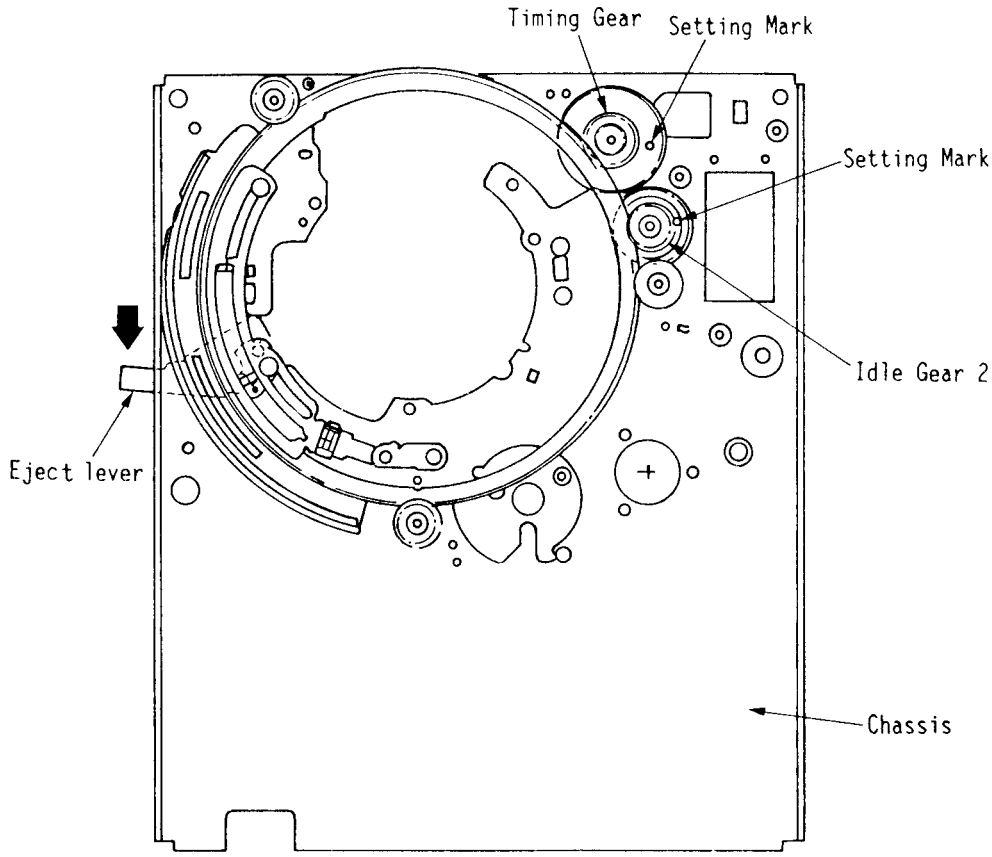


Fig. 6

4-4. Moving Guide (S) (T) Positioning

1) Set each Moving Guide (S) (T) on marks ▲ of Guide Rail (TG). (Fig. 7)
2) Put pin (A) of Loading Disk (S) into hole of Moving Guide (S) from bottom side. (Fig. 8)
3) Put pin (B) of Loading Disk (T) into hole of Moving Guide (T) from bottom side and fix the pin with cut washer from top side. (Fig. 8)

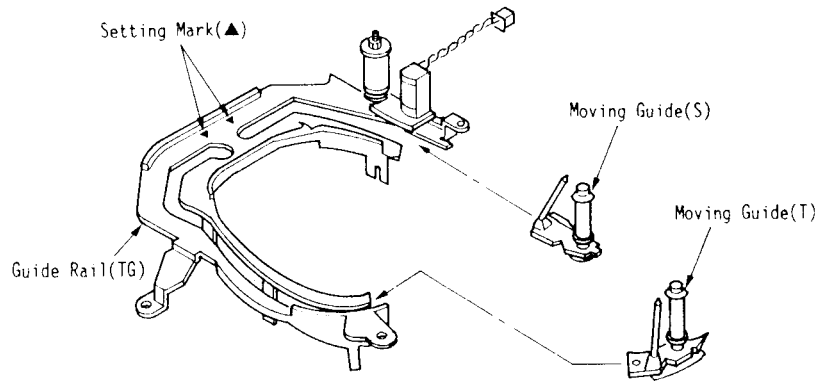


Fig. 7

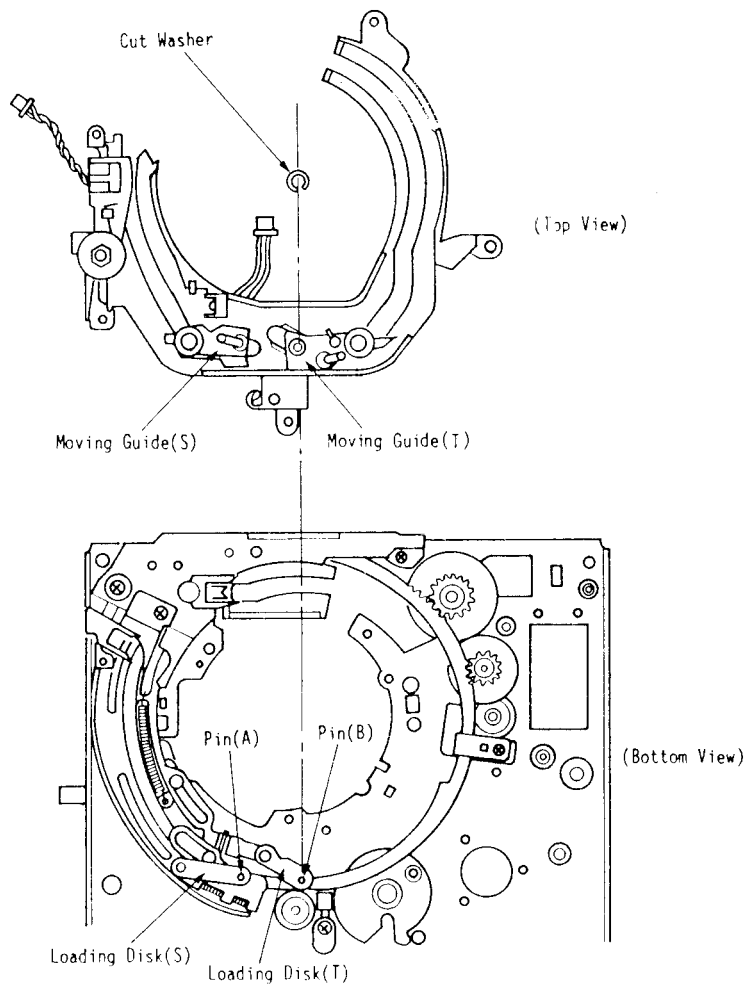


Fig. 8

4-5. Lever Ass'y Positioning (Fig. 9)

Align each setting mark of Cam Lever and Lever Ass y.

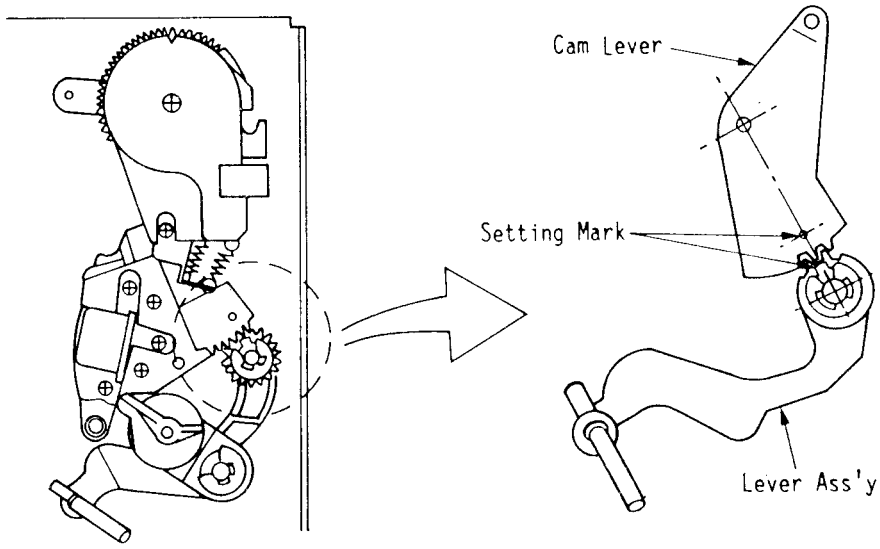


Fig. 9

4-6. Cam Gear Positioning (Fig. 10)

Align setting mark of Cam Gear and center between setting marks of Timing Gear.

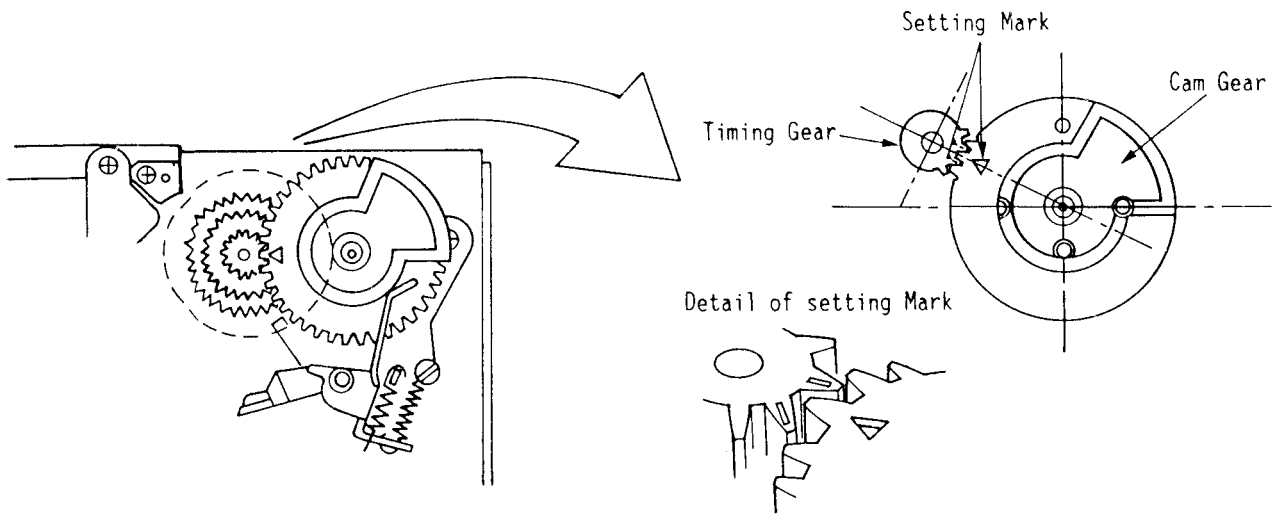


FIg. 10

4-7. Mode Select Switch Positioning (Fig. 11)

Before set Mode Select Switch on Deck, meet mark ▲ of Rotor to groove of frame.

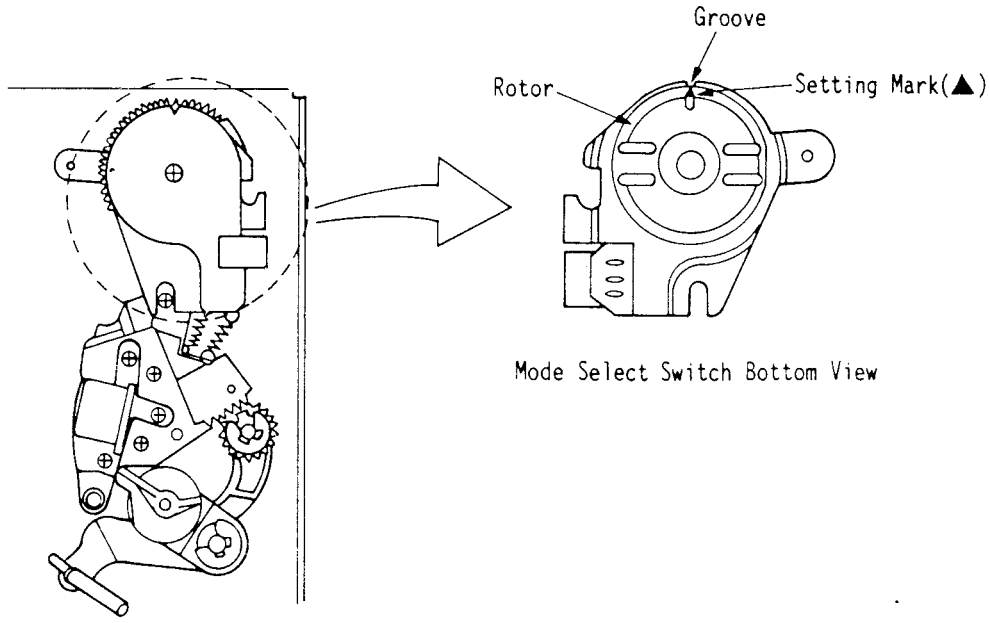


Fig. 11

4-8. Back Tension Adjustment (Fig. 12)

On "REC" mode, adjust torque value of S Reel Disk side to 14±2.5g·cm by screw (A).

= Remark =

Torque Meter (KT-350NVS) is required for this adjustment.

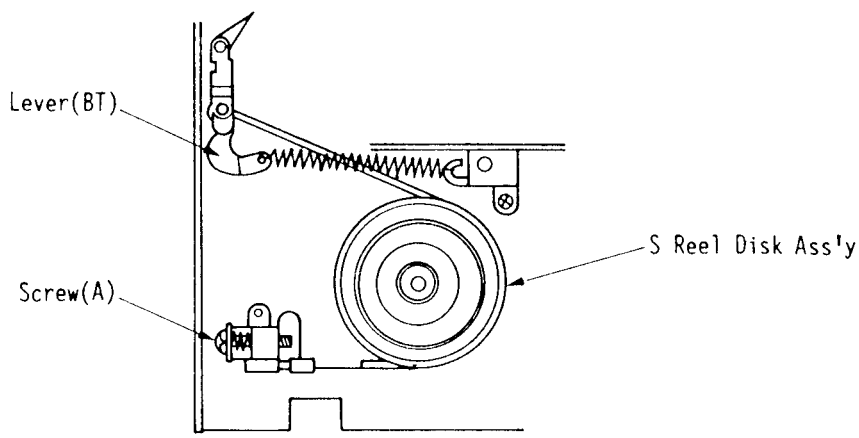


Fig. 12

4-9. Full Erase Head Setting (Fig. 13)

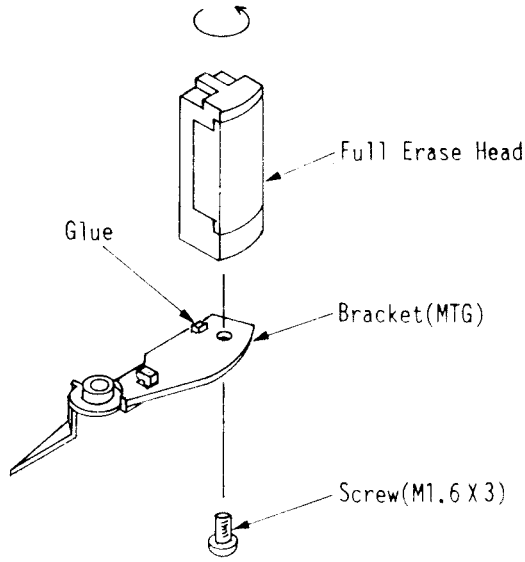


Fig. 13

4-10. LED (Infrared) Setting (Fig. 14)

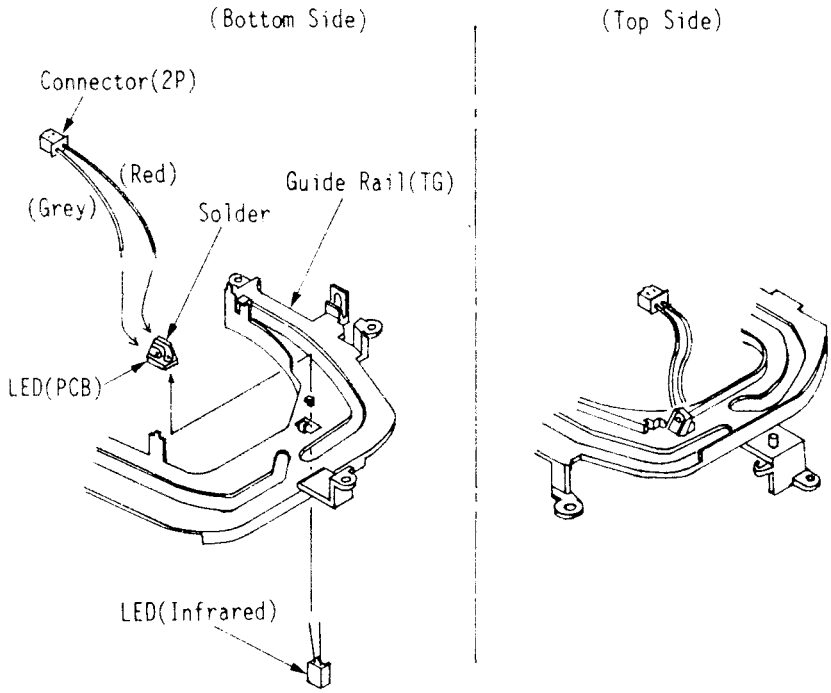


Fig. 14

= Remark =

a) Confirm wiring color.

b) At soldering, solder heigt must be lower than hook of Guide Rail (TG) for P.C.B. setting.

c) LED must be set suitably to one's seat of Guide Rail (TG).

4-11. Impedance Roller Setting (Fig. 15)

Hexagon Nut must be screwed up moderately, be able to move Bracket (MTG) smoothly.

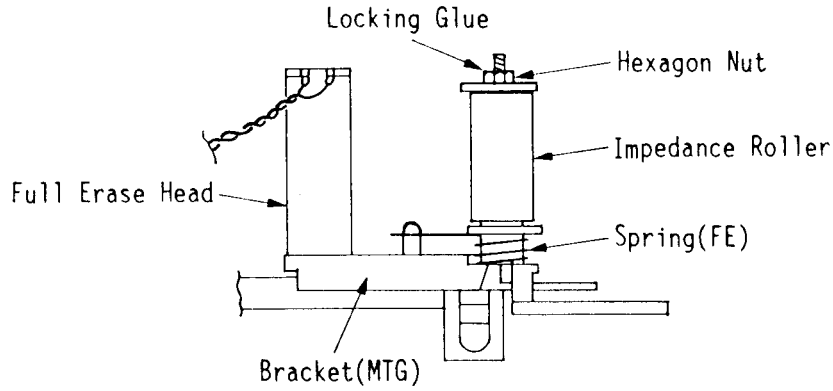


Fig. 15

4-12. Photo Transistor Setting (Fig. 16)

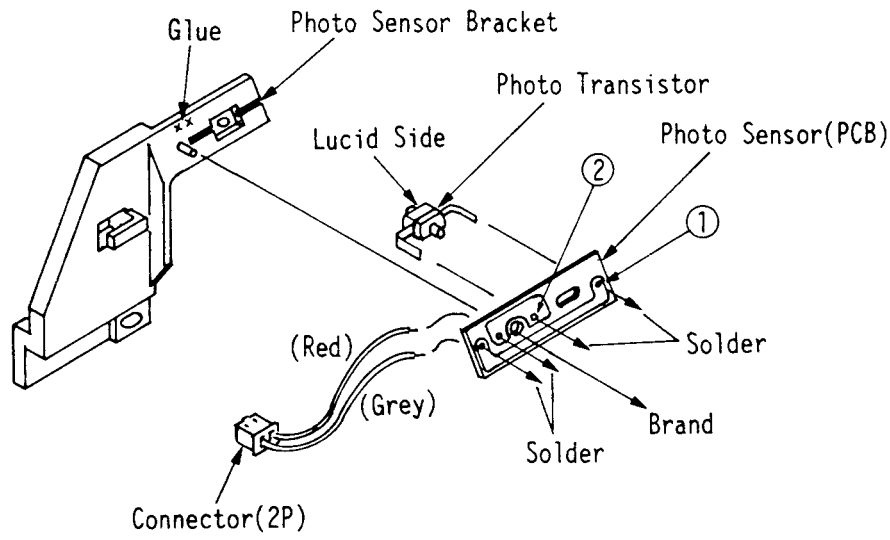


Fig. 16

= Remark =

a) Confirm wiring color.

b) Thin pole : No. 1
Thick pole : No. 2
Confirm polarity of Photo Transistor.

4-13. Moving Guide (S) Setting (Fig. 17)

1) Guide Roller (S) must be screwed up to Slide (S) and must be given screw looseness about 3/4 turn at last.
2) Screw (M1.2×3.3) must be set after Guide Roller (S) setting.
   ; Screwed up moderately, be able to move Guide Roller (S) barely.

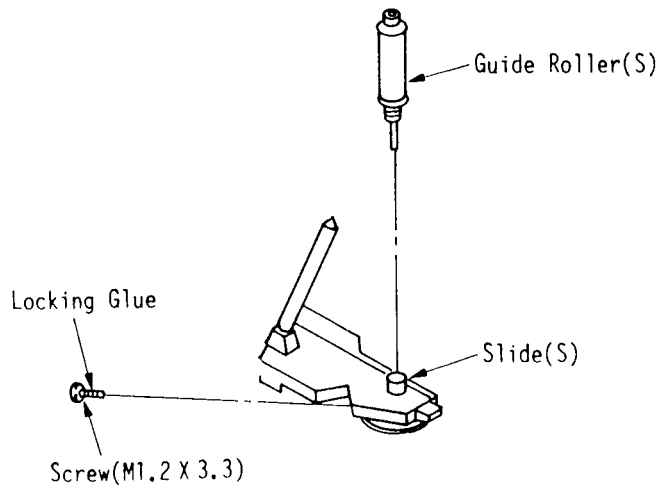


Fig. 17

4-14. Moving Guide (T) Setting (Fig 18)

1) Guide Roller (T) must be screwed up to Slide (T) and must be given screw looseness about 2 turn at last.
2) Screw (M1.2×3.3) must be set after Guide Roller (T) setting.
   ; Screwed up moderately, be able to move Guide Roller (T) barely.

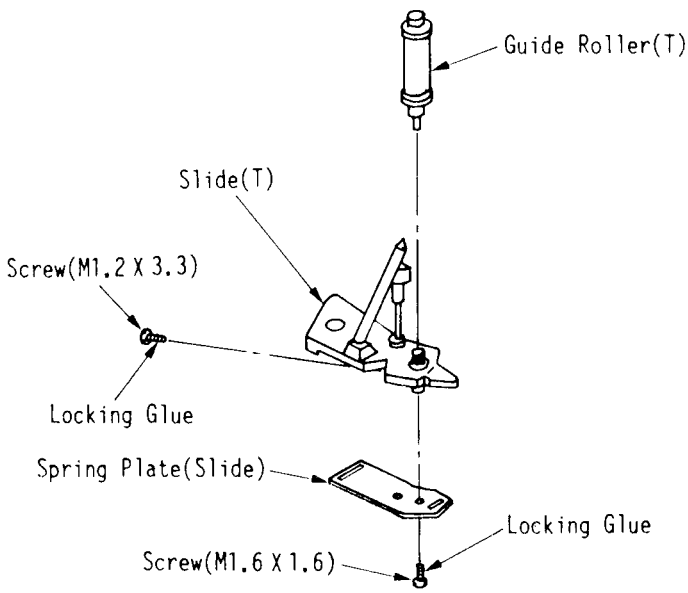


Fig. 18

4-15. ACE Head Setting (Fig. 19)

Each screw must be screwed up and must be given screw looseness about 3/4 turn at last.

= Remark =

Confirm wiring connection.

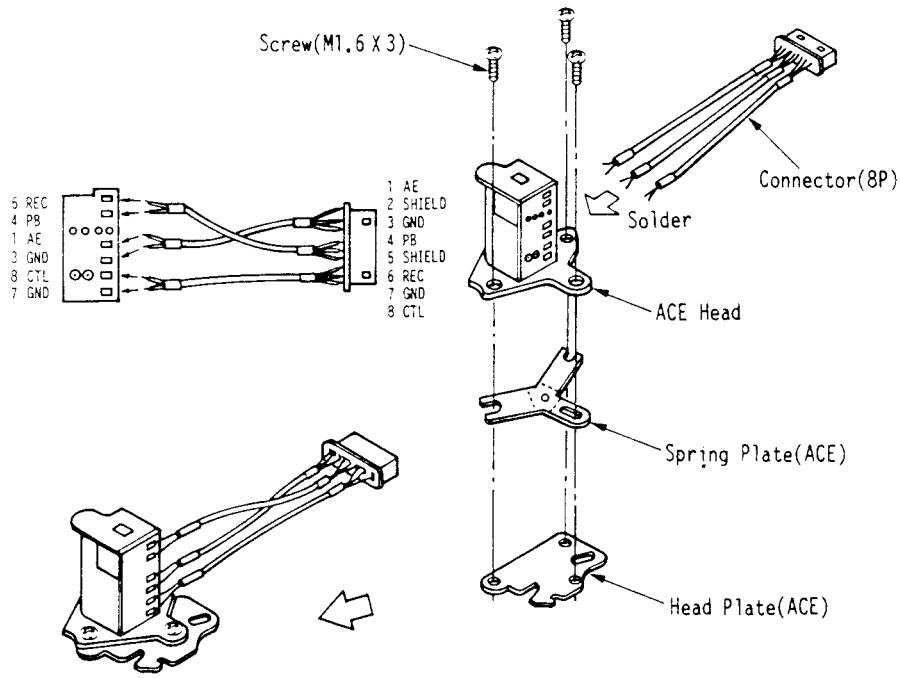


Fig. 19

4-16. Tape Guide Height Adjustment (Fig. 20, 21)

This adjustment of tape running system is important item.

Adjust dimension "A" by Tape Guide Height Adj. Jig (VD30280).

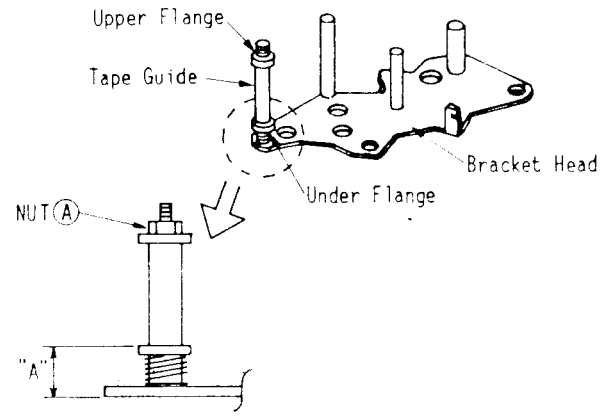


Fig. 20

1) Screw up nut Ⓐ by Box Driver 3mm.
2) Put Bracket Head Ass'y on Tape Guide Height Adj. Jig (VD30280) in the direction of ① and slide slowly in the direction of the ② so that Tape Guide is fitted to groove of the Jig. (Fig. 21)

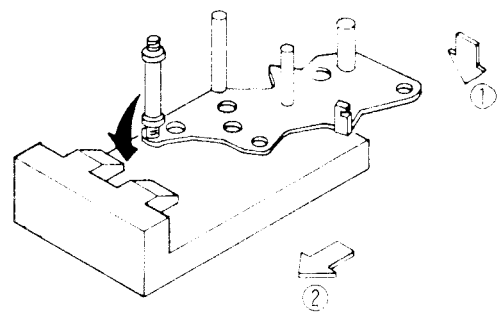


Fig. 21

3) Loosen nut Ⓐ slowly by Box Driver 3mm so that Under Flange is fitted to the Jig. (Fig. 22)

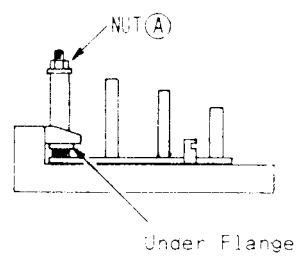


Fig. 22

4) Remove Bracket Head Ass'y slowly from the Jig.

= Remark =

At Bracket Head Ass'y movement of item 2) and 4), take care so that Tape Guide has no damage.

4-17. Pinch Cap Setting (Fig. 23)

= Remark =
Confirm no lean on shaft (A)

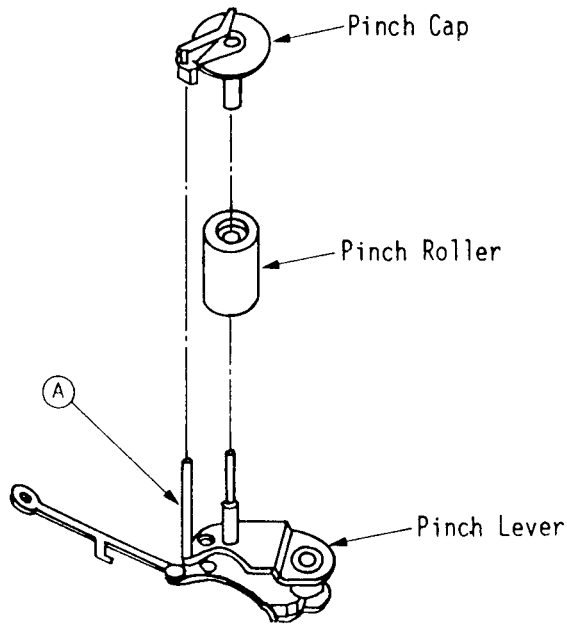


Fig. 23

1. DISASSEMBLY INSTRUCTIONS (SET)

1-1. Cassette Cover Removal (Fig. 1)

Remove 2 Screws (A).

1-2. Right Side Cabinet Removal (Fig. 1, 2)

Remove 3 Screws (B) (E).

= Remark =
Don't break the Locking Tab.

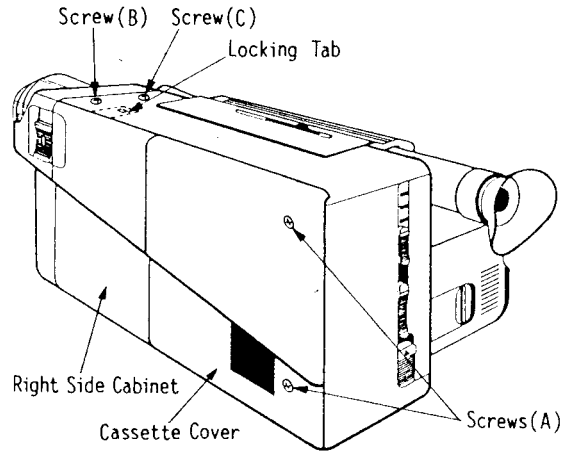


Fig. 1

1-3. Front Panel Removal (Fig. 1, 2)

1) Remove 2 Screws (C) (D).
2) Hold both right and left of Front Case Unit and pull carefully it toward the front.

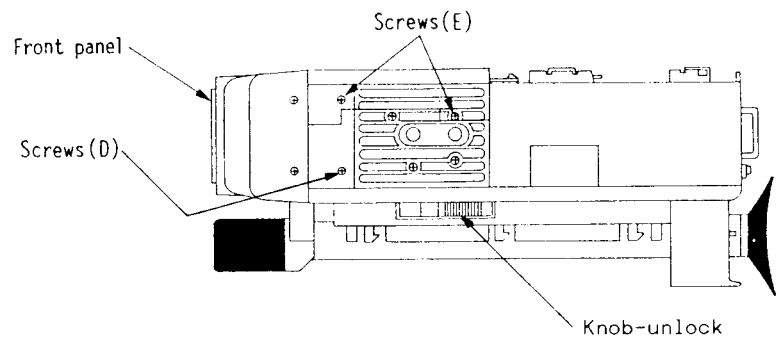


Fig. 2 Bottom Side View

1-4. Battery Cover Removal (Fig. 2, 3)

1) Slide Knob-unlock, open Battery Cover.
2) Remove 3 Screws (F).
3) Remove up Battery Cover.

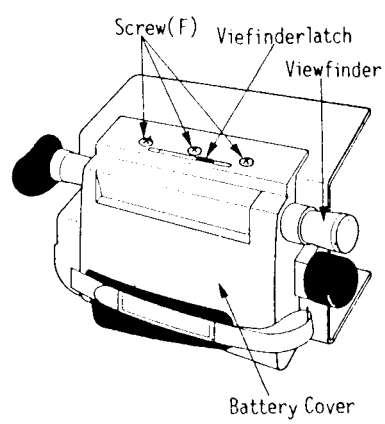


Fig. 3

1-5. Viewfinder Removal (Fig. 4)

1) Unlock Viewfinder by holding down Viewfinder Latch on top of Videomatic.
2) Carefully remove Viewfinder by pulling it toward the front of Videomatic.

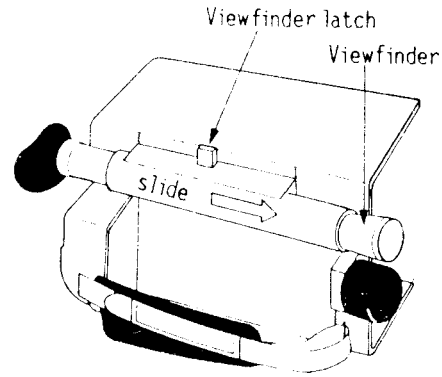


Fig. 4

1-6. Mic Unit Removal (Fig. 5)

1) Remove 2 Screws (G).
2) Remove connector (CN3).

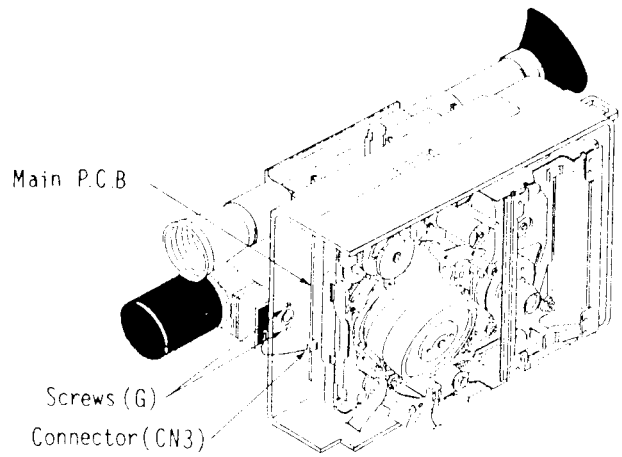


Fig. 5

1-7. Deck Ass'y Removal (Fig. 6)

1) Remove 4 Screws (H) (I).
2) Remove connector (CN9).

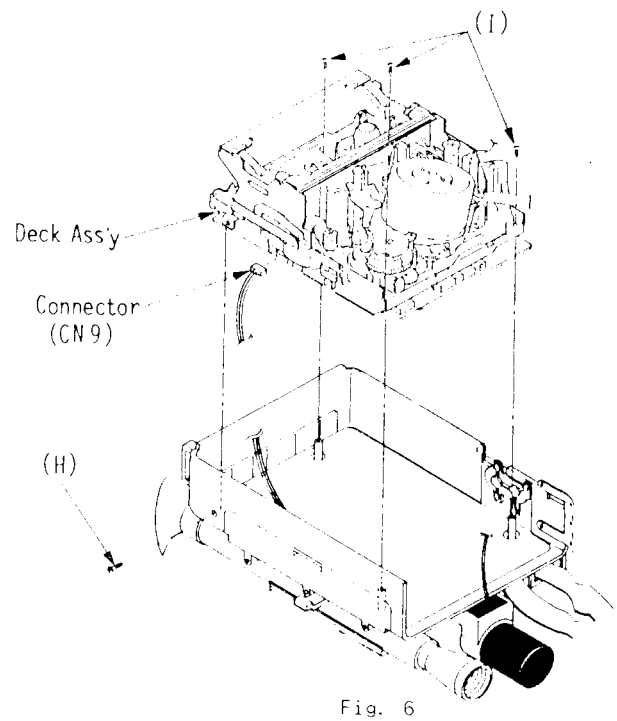


Fig. 6

1-8. Main P.C.B. Removal (Fig. 7)

1) Remove 3 screws (J).
2) Remove 5 connectors (CN4) (CN5) (CN10) (CN11) (CN12) and flexible wire (CN1).

= Remark =
Don't damage to other connectors (CN14) (CN15) between Main P.C.B. and Deck Ass'y.

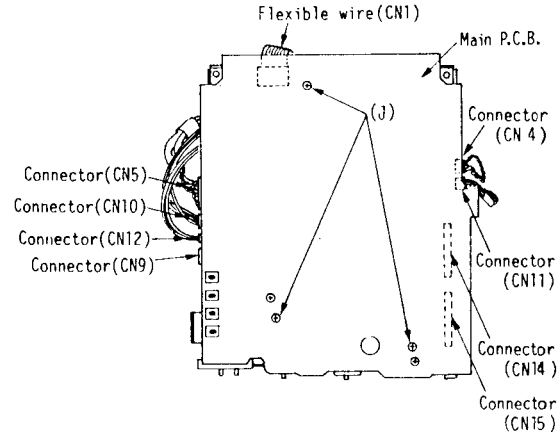


Fig. 7

1-9. Driver P.C.B. Removal (Fig. 8)

1) Remove 2 connectors (CN16) (CN17) and 2 flexible wires (CN18) (CN19).
2) Remove 2 screws (K).
3) Unfasten 2 hooks (L) from Deck Ass'y.

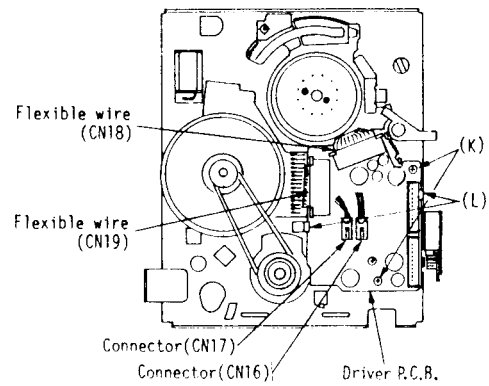


Fig. 8

1-10. Camera P.C.B. Ass'y Removal (Fig. 9)

Remove 3 screws (M) (N).

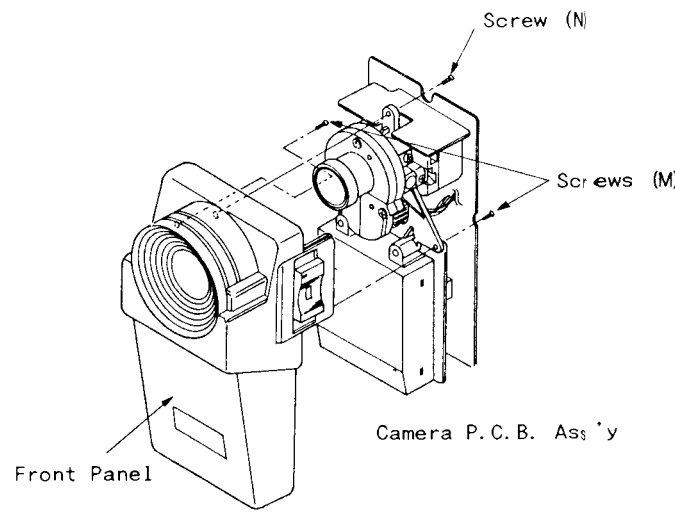


Fig. 9

1-11. DC-DC Convertor P.C.B. Removal (Fig. 10)

Remove 2 screws (O).

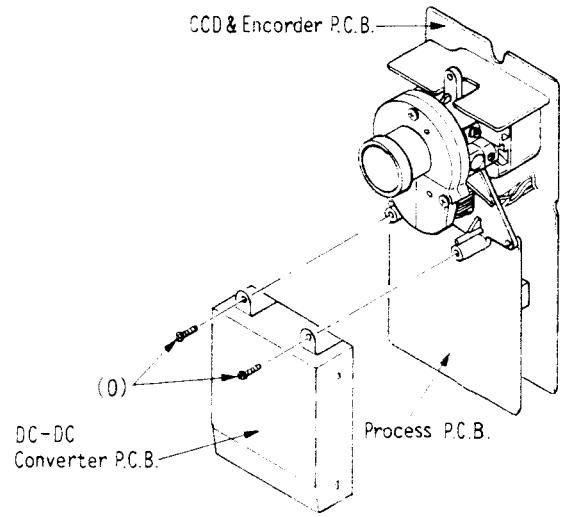


Fig. 10

1-12. Process P.C.B. Removal (Fig. 11)

1) Remove connector (CN601) from CCD & Encorder P.C.B..
2) Remove 2 connectors (CN603), (CN604) and (CN901).
3) Remove the connected white wire on the Test Pin TP507 by unsolder.

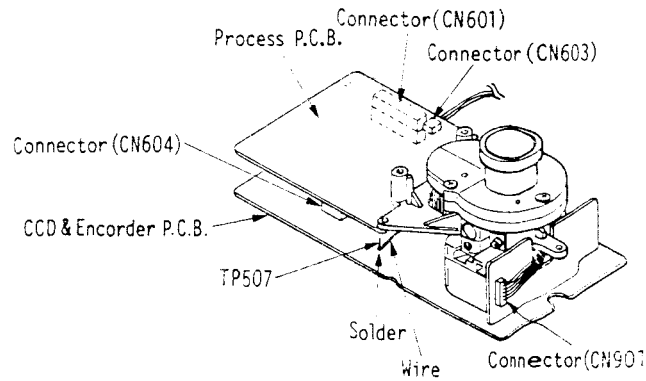


Fig. 11

2. DISASSEMBLY INSTRUCTIONS (DECK)

= Remark =

1. When removing the some components, work with care so as not break the plastic components.
2. Do not supply power to the unit during disassembly.
3. Place a cloth or some other soft material under the P.C.B. or Unit to prevent damage.
4. When reinstalling, ensure that the connectors are connected and electrical components have not been damaged.
5. The Cut Washer is not reusable. If removed, install a new one.

[1] CASSETTE HOLDER ASS'Y

(If not already removed the Main P.C.B., remove the Main P.C.B.
refer to Disassembly instruction (SET) on page 1-3.
Use step 1-8. Main P.C.B. removal.)

(1) Push the Eject Lever (A) to place the unit in Cassette Up condition.
(2) Remove 2 Screws (B).
(3) Slide the Cassette Holder Ass'y in direction of arrow, then take out the 2 Pins (C) on the moving Levers of the Cassette Holder Ass'y from the enlarged circular Insertion Holes (D) at end of each Cassette Guide Slot.

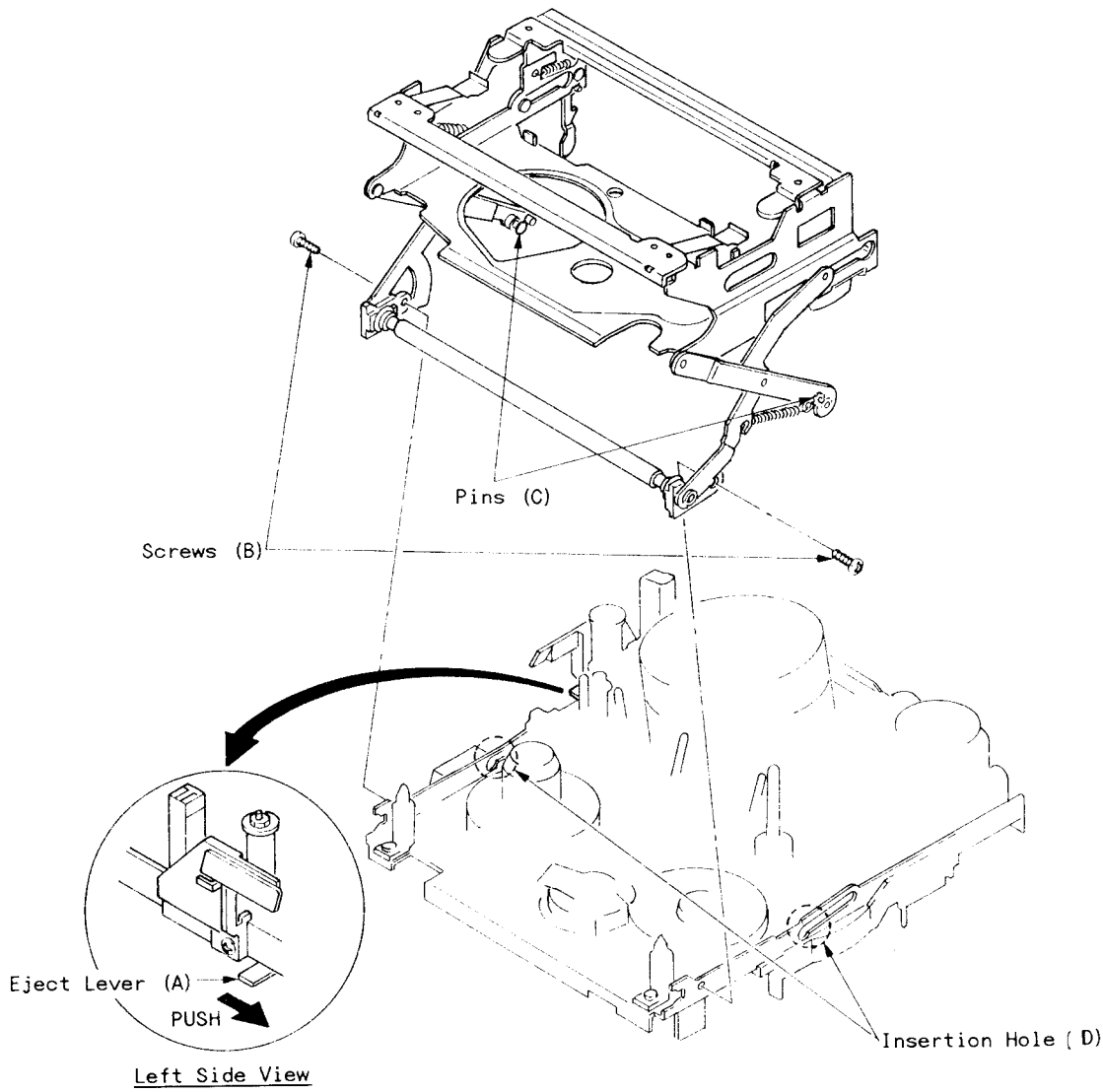


Fig. 2-1

[2] CYLINDER ASS'Y

(1) Remove 1 Screw (A), and take off the PG Cover (B).
(2) Remove 2 Screws (C), and take off the Cylinder Ass'y with Cylinder Base.
(3) Remove 3 Screws (D), and take off the Cylinder Ass'y (E) from the Cylinder Base (F).
(When removing, the Upper Drum, refer to Standard Maintenance Section on page 4-2. Use step 4-2. Upper Drum Replacement.)

= Remark =
1. When removing the Cylinder Ass'y, work with care so as not to damage the any components.
2. Use gloves and do not touch the drum surface with bare fingers.
3. If the Video Head is defective, replace the complete upper drum with the Head.

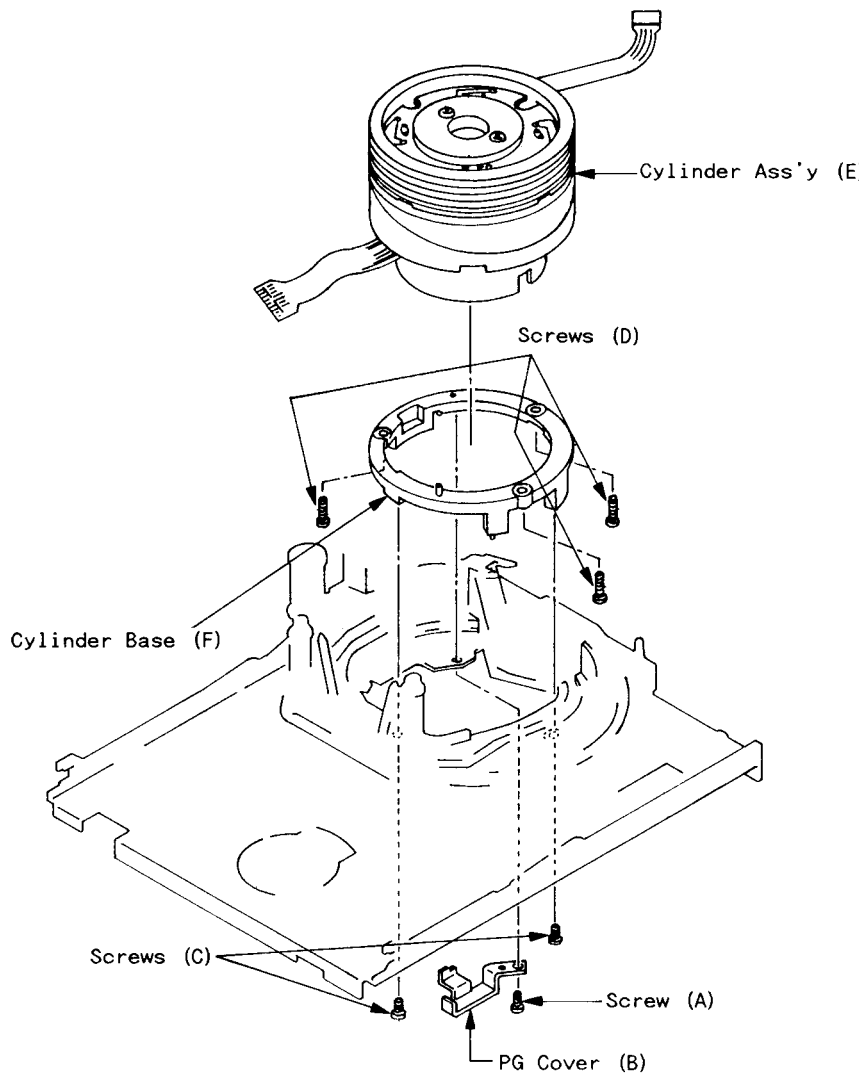


Fig. 2-2

[3] PHOTO SENSOR/FULL ERASE HEAD/IMPEDANCE ROLLER/DAMPER

1. Photo Sensor
(1) Remove 1 Screw (A) and take off the Photo Sensor Ass'y (B).
(2) Pull the Sensor P.C.B. Ass'y (C) from Photo Sensor Bracket (D).

2. Full Erase Head/Impedance Roller Ass'y
(1) Remove Nut (E).
(2) Take out the Impedance Roller Ass'y (F), and pull up the MTG Bracket (G).
(Take care not to lose parts (H) (I) (J) (K) (L) (M) at the time of the MTG Bracket removal.)
(3) Remove 1 Screw (N), and take off the Full Erase Head (O).

3. Damper
(1) Remove 1 Screw (P), and take off the Damper (Q).

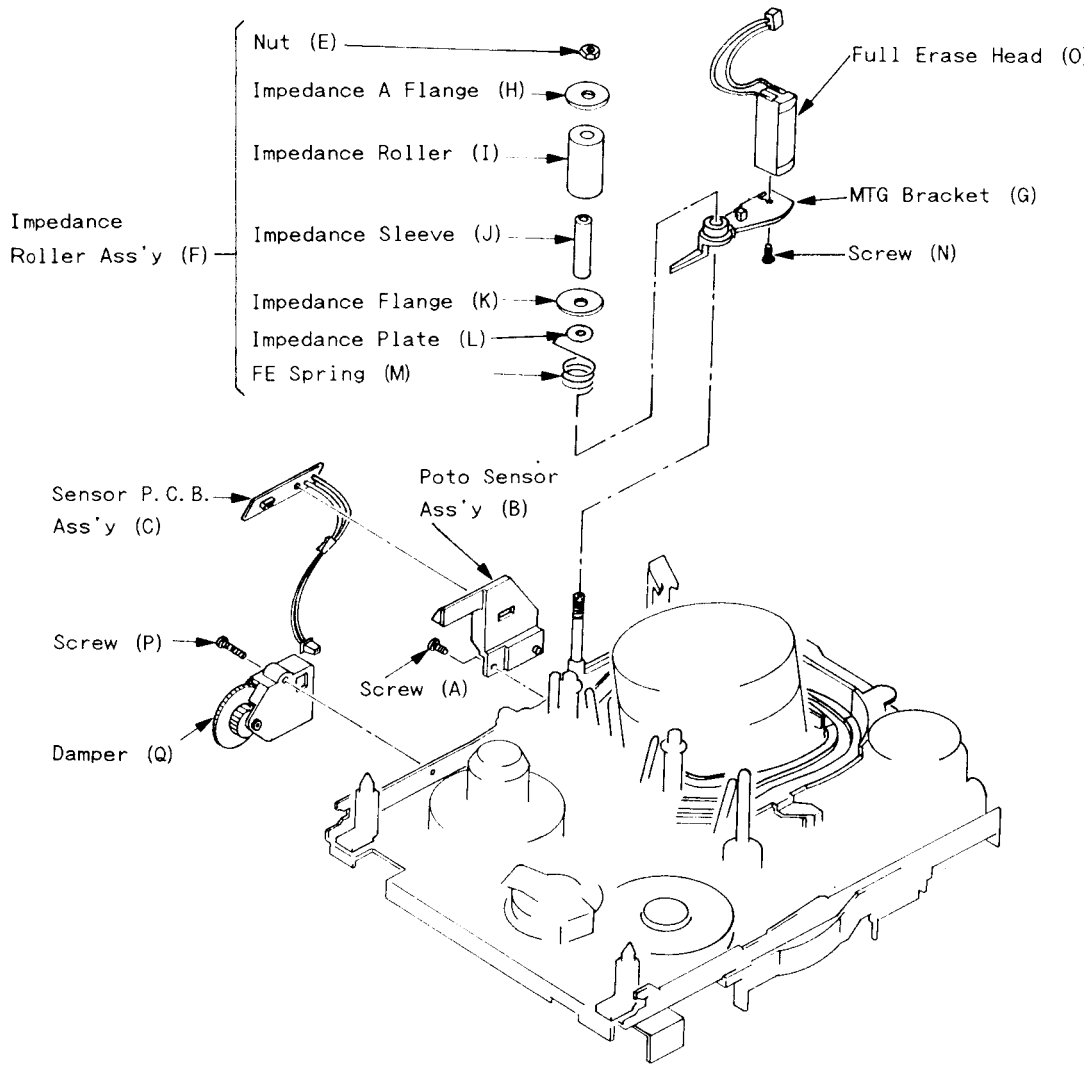


Fig. 2-3

[4] MODE SELECT SWITCH/ACE HEAD/LOADING MOTOR

1. Mode Select Switch
   (1) Remove 1 screw (A), and take off the Mode Select Switch (B).
   (2) Take out the Cam Gear (C) while pushing on the Lever Sub Ass'y (D) until it clears the cam gear teeth.

2. ACE Head
   (1) Remove the ACE Cover (E).
   (2) Remove 3 Screws (F), and take off the ACE Head (G).
   (3) Remove 1 Cut Washer (H), and unhook 1 Spring (I).
   (4) Take off the Lever Sub Ass'y (D).
   (5) Remove 3 Screws (J), and take off the Head Bracket (K).

3. Loading Motor
   (1) Remove 1 Cut Washer (L), and take off the Motor Gear (M).
   (2) Remove 2 Screws (N), and take the Loading Motor (O).

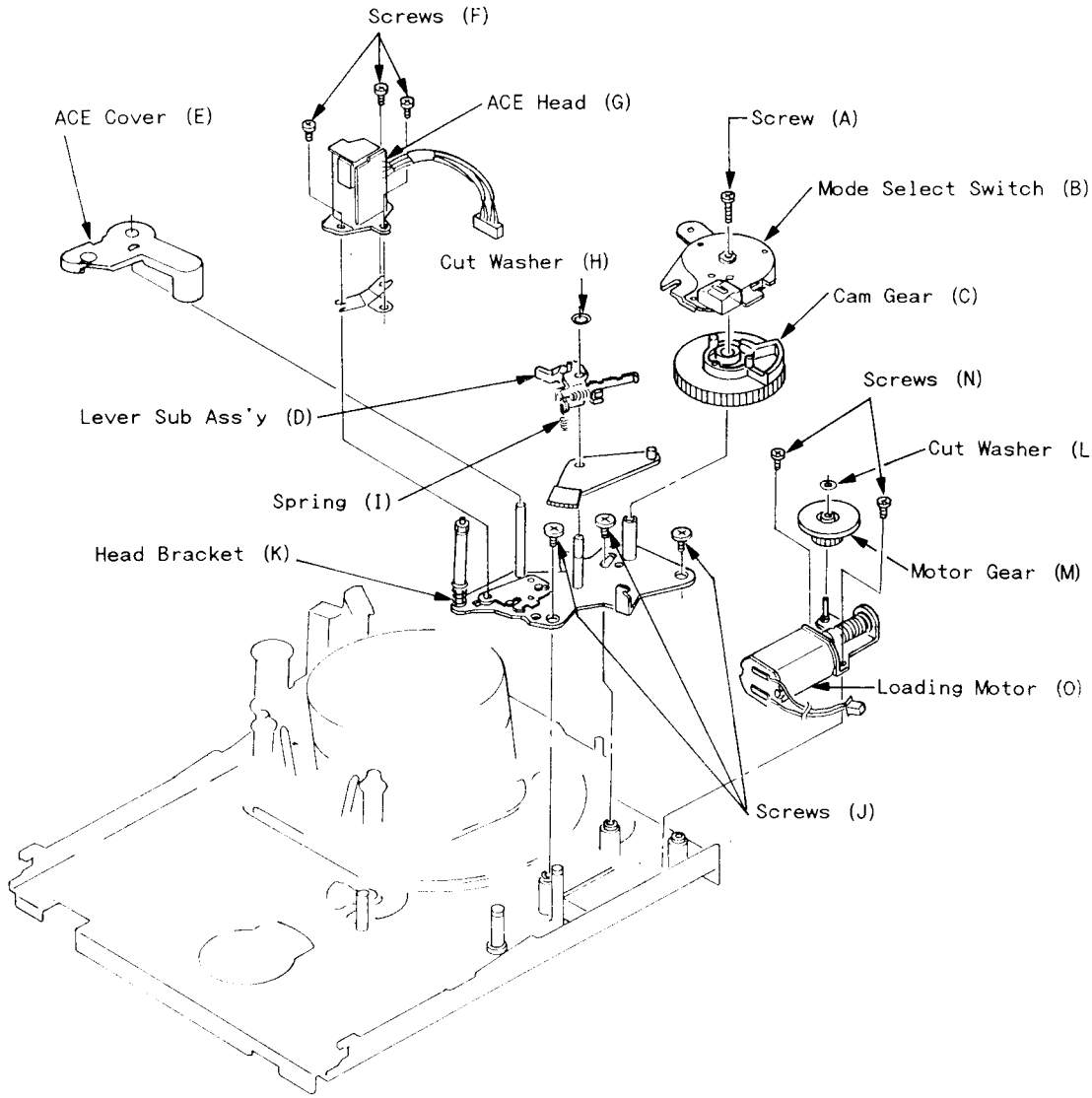


Fig. 2-4

[5] LEVER ASS'Y/PINCH ROLLER

1. Lever Ass'y
   (1) Remove 1 E-Ring (A).
   (2) Remove the Lever Ass'y (B) by pushing it to the rear toward and lifting it off its post.
   (3) Remove 1 Spring (C).

2. Pinch Roller
   (1) Remove the Pinch Cap (D), and take off the Pinch Roller (E).
   (2) Remove 1 E-Ring (F), and 1 Cut Washer (G).
   (3) Unhook 1 Spring (H), and take off the Pinch Lever (I).
   (4) Unhook 1 Spring (J).

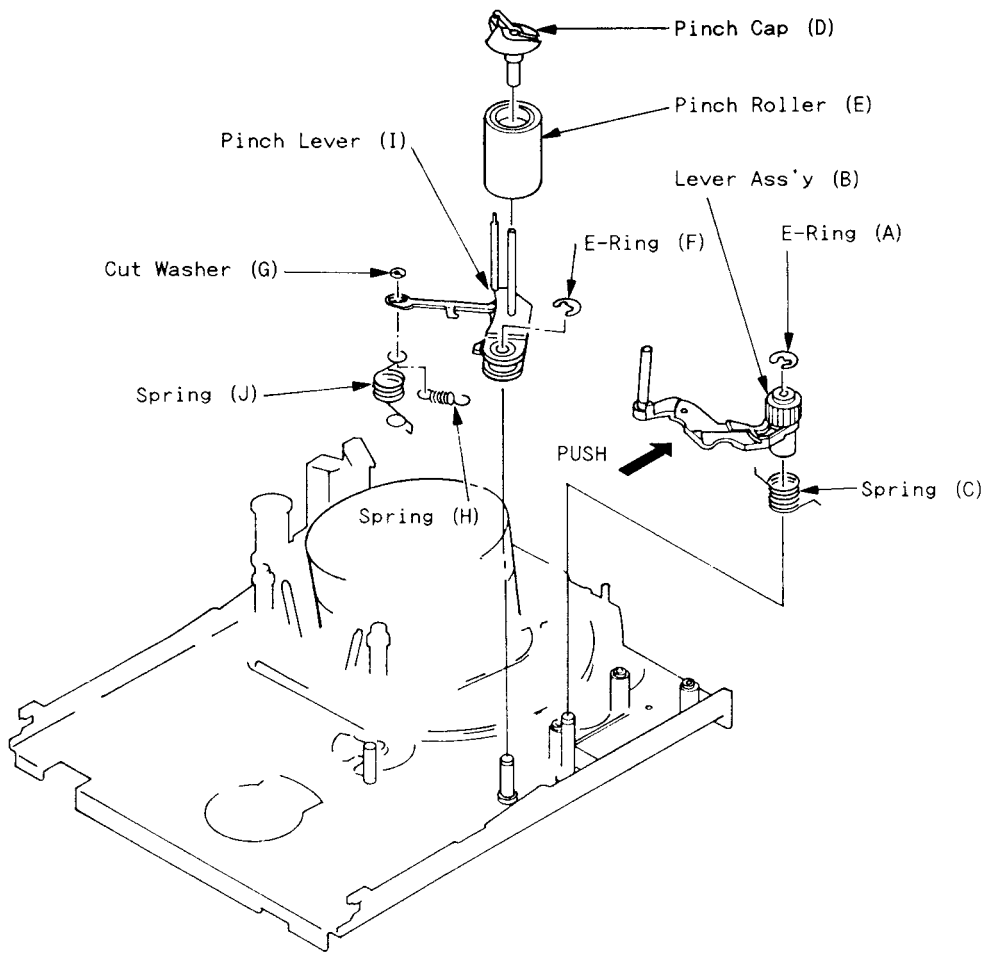


Fig. 2-5

[6] TU CLUTCH/S REEL

1. TU Clutch
   (1) Remove 1 Cut Washer (A), and take off the TU Clutch (B).

2. S Reel
   (1) Remove 1 Cut Washer (D), and take off the S Reel Disk (E) and S Band Reel (F).
   (Do not miss the Polyslider Washer (C) and (G) when pulling out the TU Clutch and S Band Reel.)

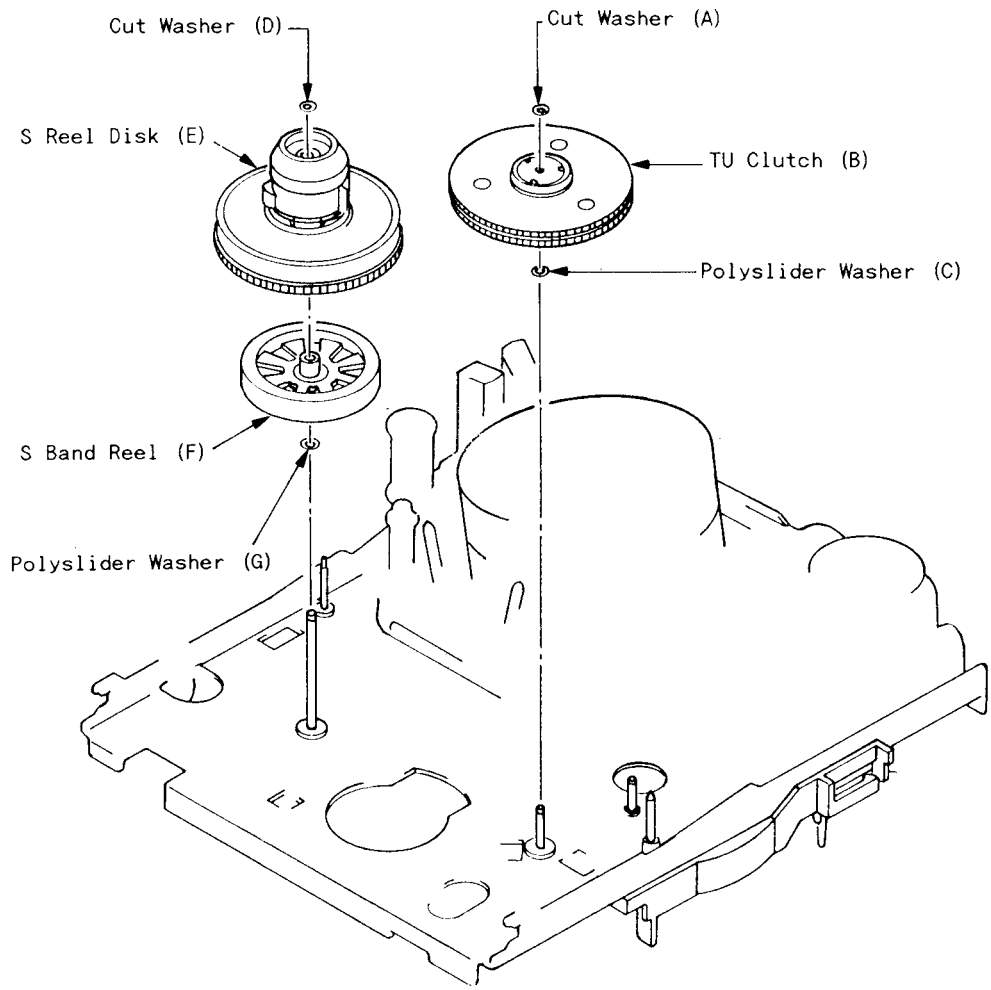
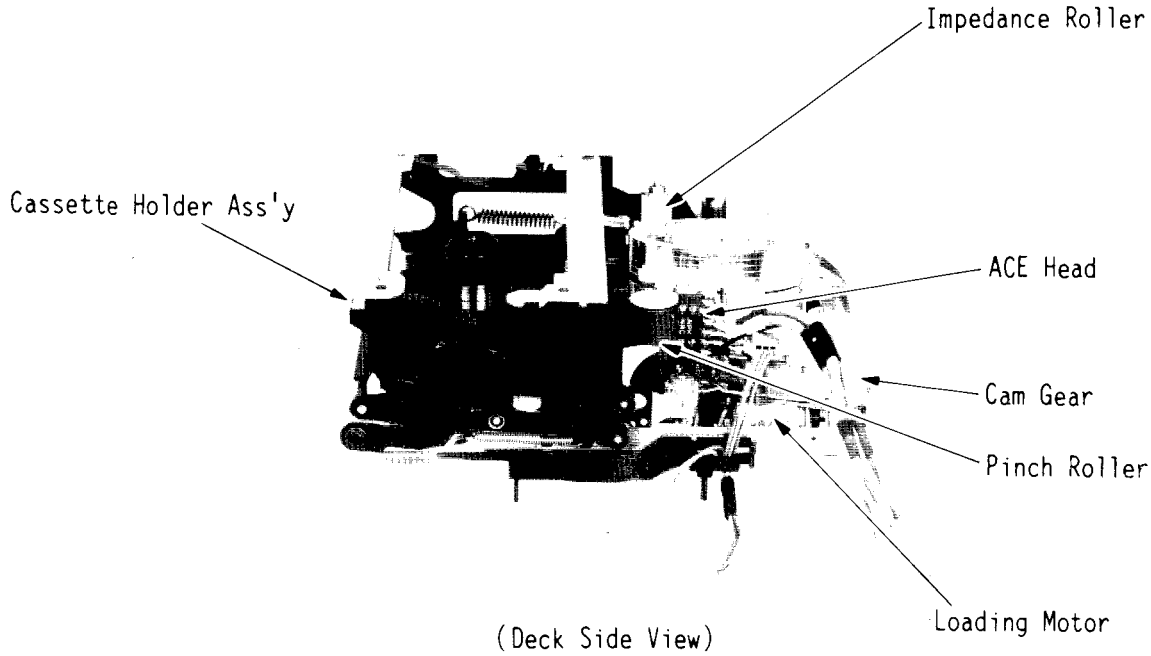
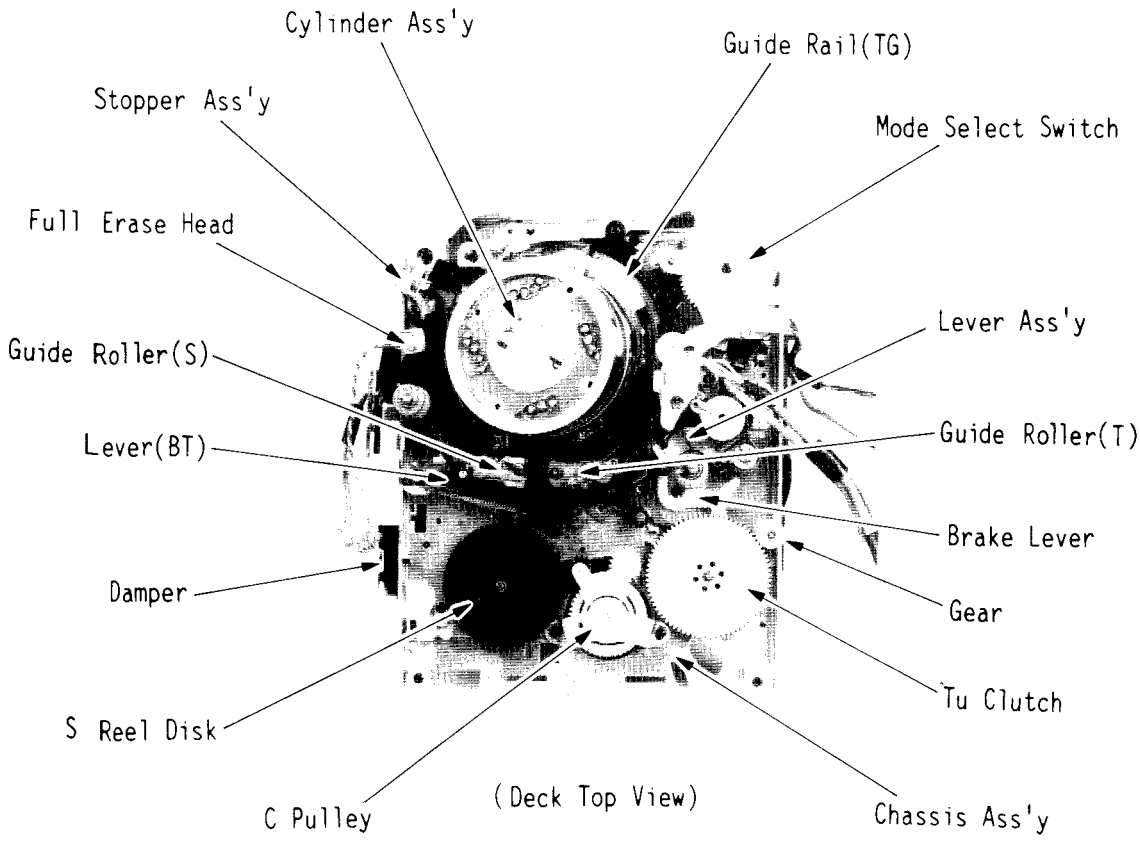


Fig. 2-6

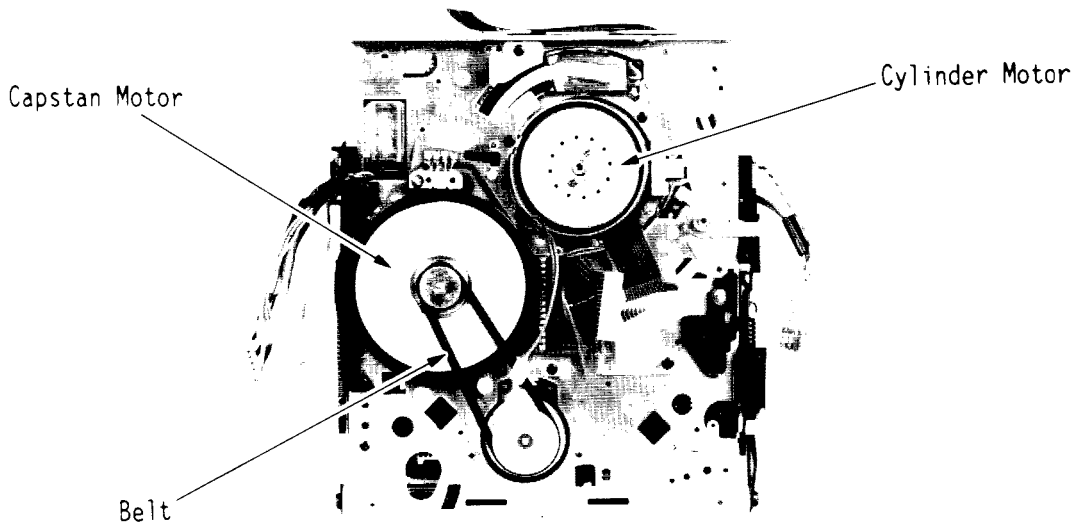
LOCATION OF MAIN PARTS



(Deck Side View)



(Deck Top View)



(Deck Bottom View)

[7] C PULLEY/BRAKE LEVER/GEAR

1. C Pulley
 (1) Remove 2 Screws (A), and take off the C Pulley (B).

2 Bracket Lever
 (1) Unhook 1 Spring (C).
 (2) Remove 1 Cut Washer (D), and take off the Brake Lever (E).

3. Gear
 (1) Remove 1 Cut Washer (F), and take off the Gear (G).

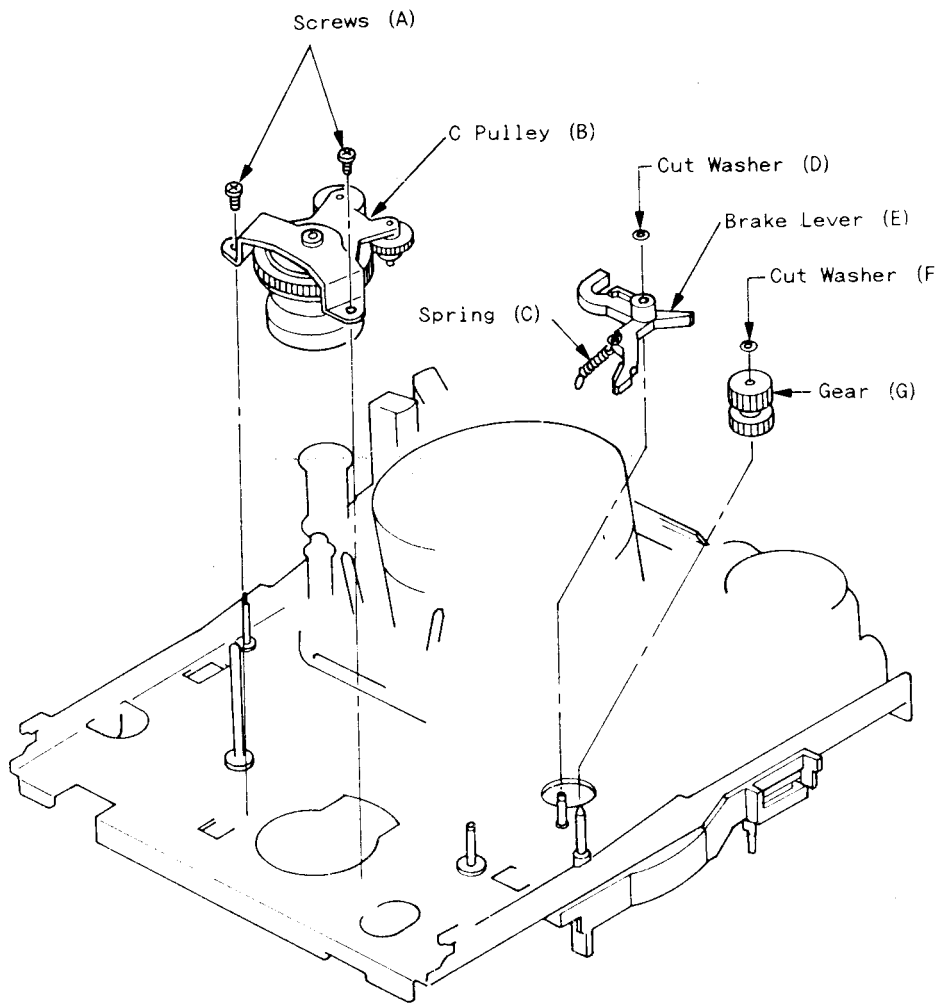


Fig. 2-7

[8] BT BELT

(1) Remove 1 Screw (A), and BT Lever Cap (B).
(2) Unhook 1 Spring (C), and take off the Lever BT (D).

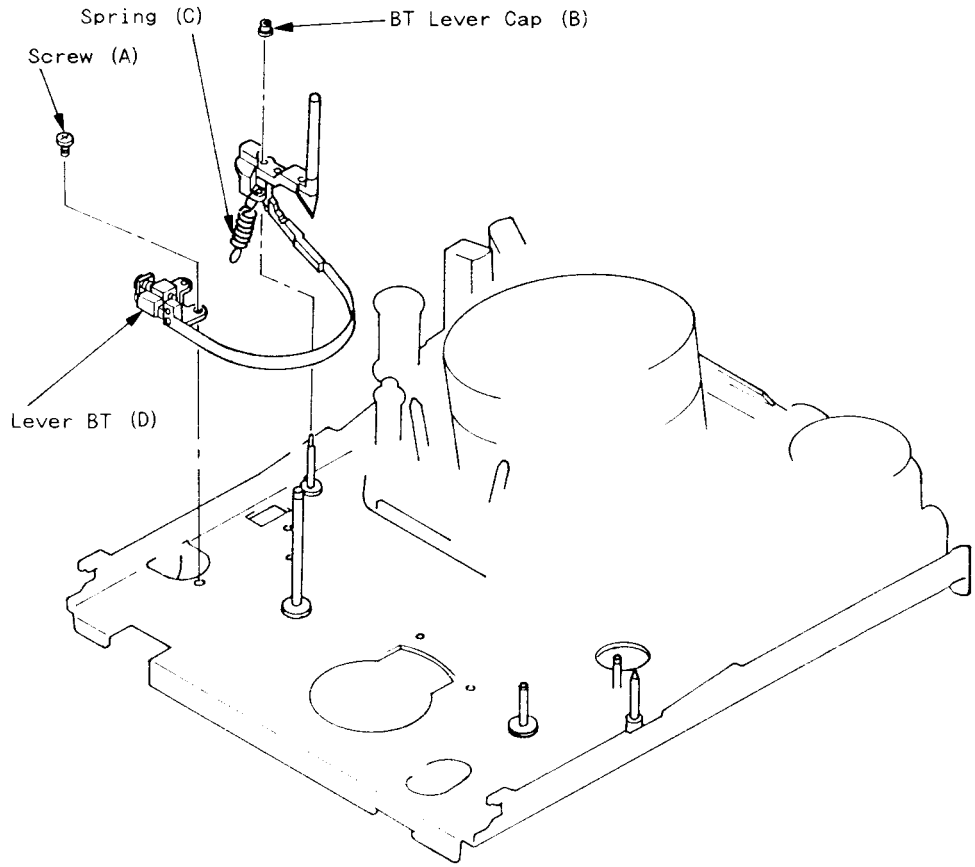


Fig. 2-8

[9] CAPSTAN MOTOR

(1) Remove the Belt (A), and 3 Screws (B).
(2) Disassembly the Flat Cable from connector CN19 on the Driver P.C.B., and take off the Capstan Motor (C).

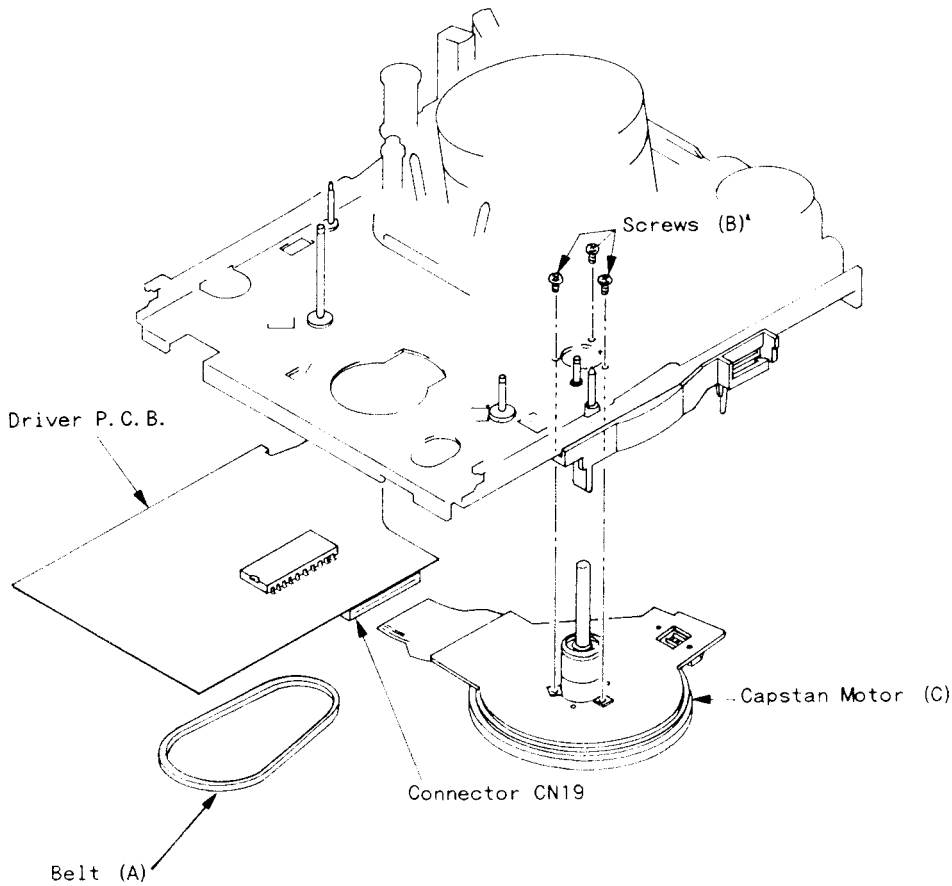


Fig. 2-9

[10] GUIDE RAIL TG/GUIDE ROLLER S & T/DEW SENSOR

1. Guide Rail TG
   (1) Remove 1 Screw (A) and Guide Stand (B).
   (2) Remove 4 Screws (C, D, E, F), and Cut Washer (G).
   (3) Release 2 Locking Tabs (H), and take off the Guide Rail TG (I).
   (4) Take off the Guide Roller S (J) and T (K) from the Guide Rail TG (I).
   (5) Remove LED (L). (Unsolder 2 Pins on LED P.C.B. (M).)

2. Stopper Ass'y
   (1) Remove 2 Screws (N), and take off the Stopper Ass'y (O).

3. Dew Sensor
   (1) Remove 1 Screw (P), and take off the Dew Sensor (Q).

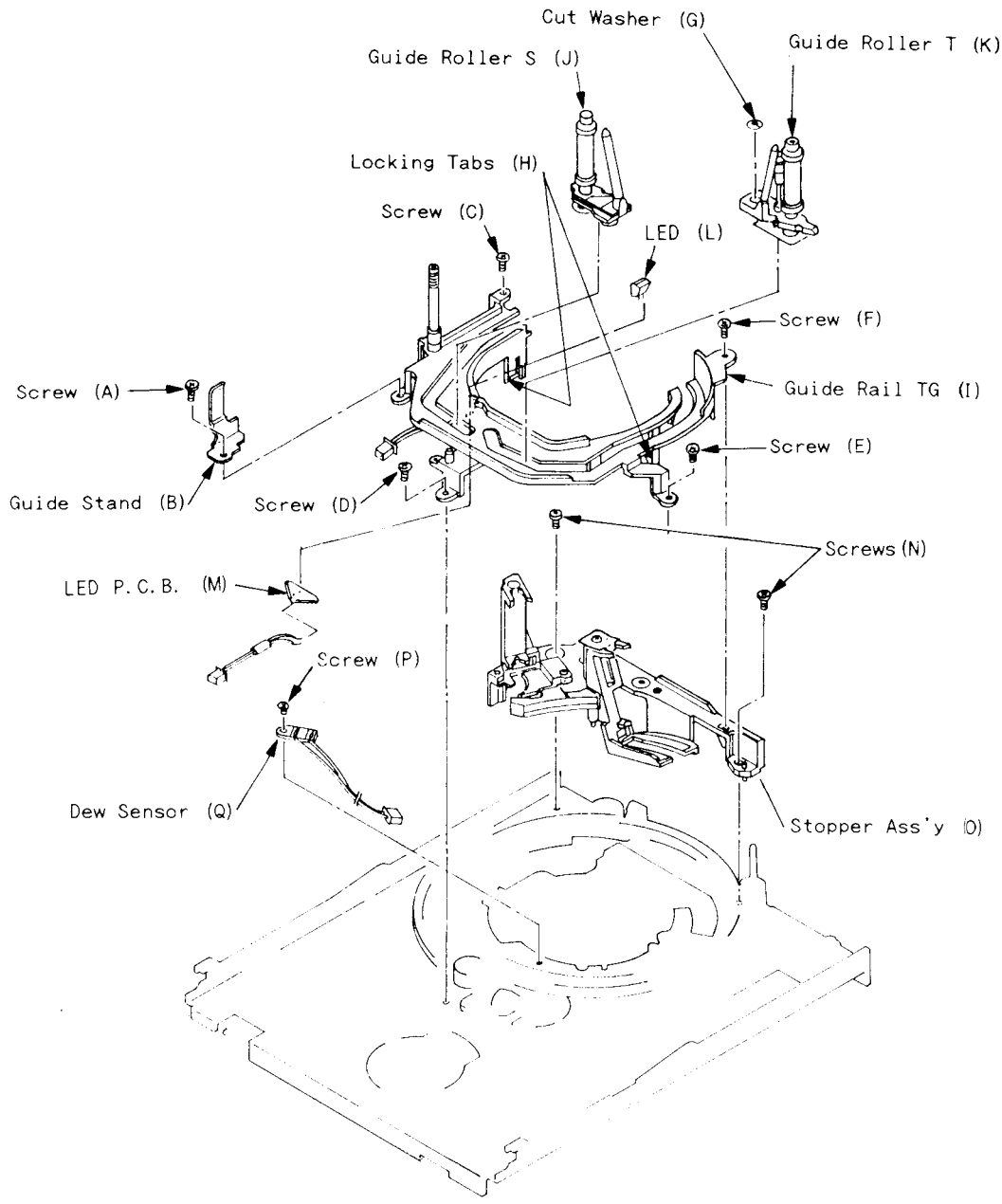


Fig. 2-10

5. MECHANICAL ADJUSTMENT

5-1. Tape Running Position Adjustment

If part replacement was done in the tape running system, perform visual inspection of system condition with Blank Tape (E-30 normal) running in the first place.

5-1-1. Guide Roller (S) (T) Adjustment (Fig. 1)

1) Confirm no trouble at tape holding condition.
2) Confirm no tape derail from roller's flange.
   If there is tape derail, adjust Guide Roller height with screwing Guide Roller.

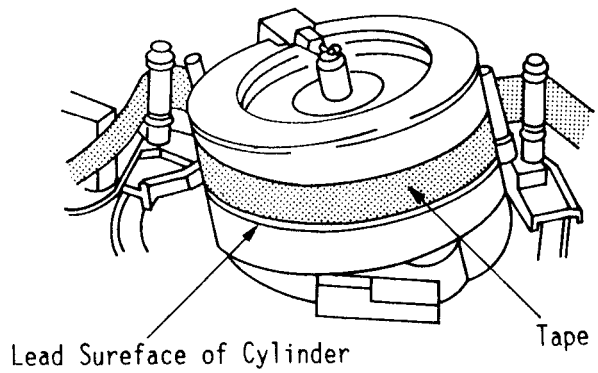


Fig. 1

5-1-2. ACE Head Adjustment (Fig. 2)

For smooth tape running on ACE Head, adjust lean of ACE Head by screw (1).

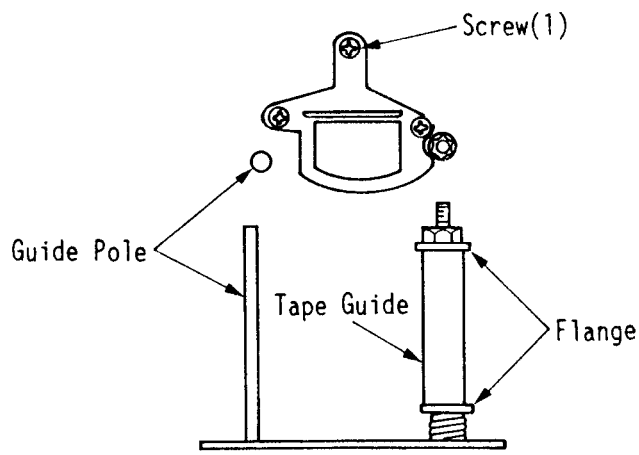


Fig. 2

= Remark =
Confirm no tape curling.

5-2. Envelope Waveform Adjustment

Alignment Tape (FC6NS) is required at this adjustment.

5-2-1. Envelope Waveform Confirmation (Fig. 3)

Playback Alignment Tape (FC6NS), set Envelope Waveform to its maximum level with trucking adjustment.
Then confirm each following value on the specification.

Maximum output level ····· a
Minimum output level ····· b
Supply side output level ····· c
Take-up side output level ····· d

Specification : $b/a \geqq 0.8$, $c/a \geqq 0.7$, $d/a \geqq 0.7$

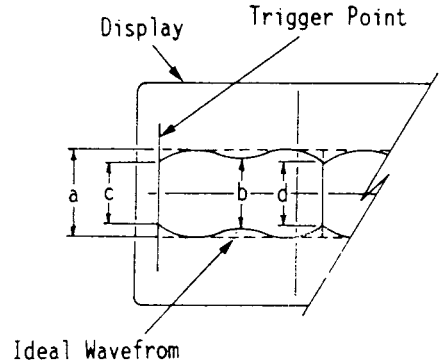


FIg. 3

5-2-2. In the case of spec. out

In this case, there are partial level down and noise with some trucking lag.
Perform adjustment in the order of following.

1) Adjust Guide Roller (S) height in order to obtain parallel variation of supply side Envelope Waveform through output variation from maximum to minimum with trucking adjustment. (Fig. 4)

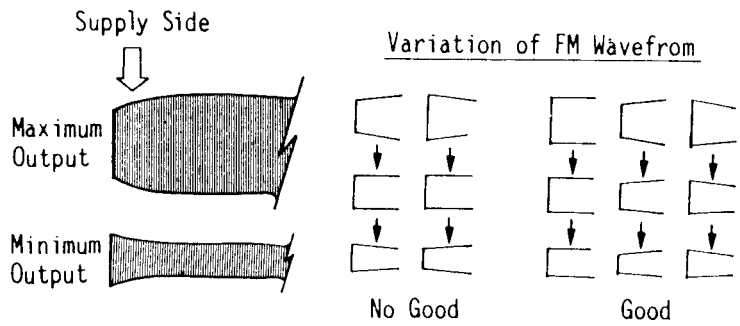


Fig. 4

2) Adjust Guide Roller (T) height in the same way. (Fig. 5)

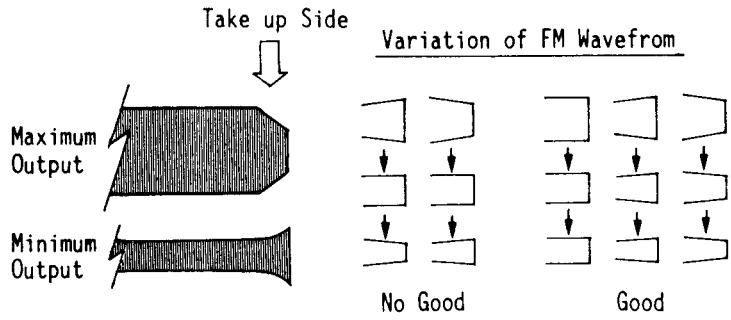


Fig. 5

3) Adjust Guide Roller (S) (T) height elaborately in order to obtain parallel and straight output variation of Envelope Waveform at all trucking range.

4) Confirm tape running condition by visual inspection.
If there is out of order, correct machanical defect and perform above adjustment 1) 2) 3) again.

= Remark =
If there is tape curling on Tape Guide, correct tape running to smooth with lean adjustment of ACE Head.

5-3. Audio Control Head Adjustment

ACE Head height can be adjusted by 3 screws (1) (2) (3). (Fig. 6)

1) Playback Alignment Tape (FC6NS).
2) Adjust screw (3) so that audio output level is brought to its maximum level at this adjustment. (Fig. 6)

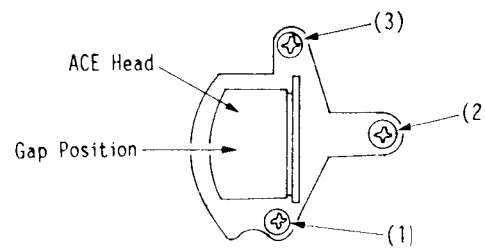


Fig. 6

3) Adjust ACE Head height by 3 screws (1) (2) (3) so that audio output level is brought to its maximum level. (Fig. 7)

= Remark =
At this adjustment, 3 screws (1) (2) (3) shall be turned for same direction and same degrees (approximate 45 degrees) little by little.

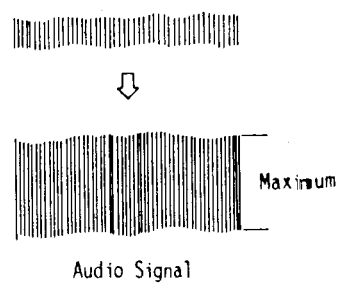


Fig. 7

5-4. X-Value Adjustment

1) Playback Alignment Tape (FC6NS) and set trucking on its center position.
2) Give little looseness to 2 screws (1) (2) and move ACE Head so that screw (1) becomes center position of slot by X-Value Adj. Driver (VD40044) set to the guide hole of Bracket (Head) and the groove of Head Plate (ACE). (Fig. 8)

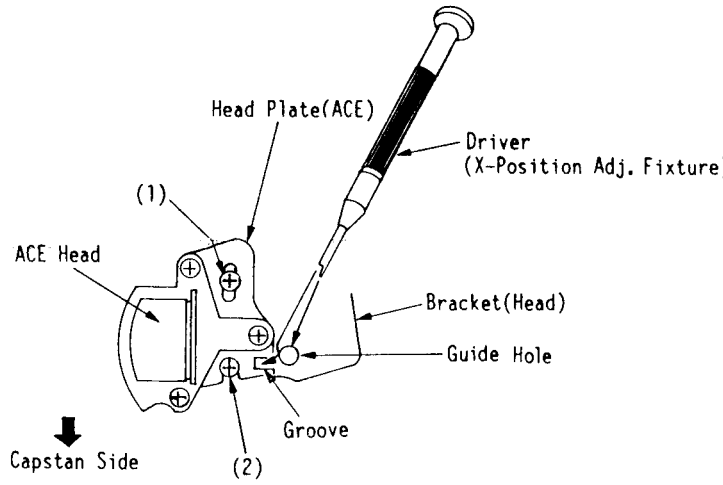
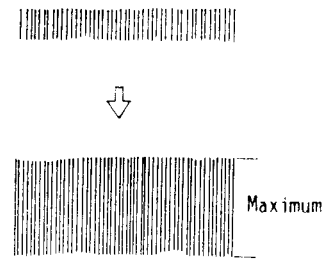


Fig. 8

3) Move ACE Head to both side from existing position and inspect Envelope Waveform level.
Then fasten 2 screws (1) (2) at the position that Envelope Waveform becomes its maximum level and also be nearest from the position of item 2).
4) Confirm Envelope Waveform becomes its maximum level at center position of tucking. (Fig. 9)
If Envelope Wavefome is not its maximum level, perform above adjustment 1) 2) 3) again.



FM Wavefrom

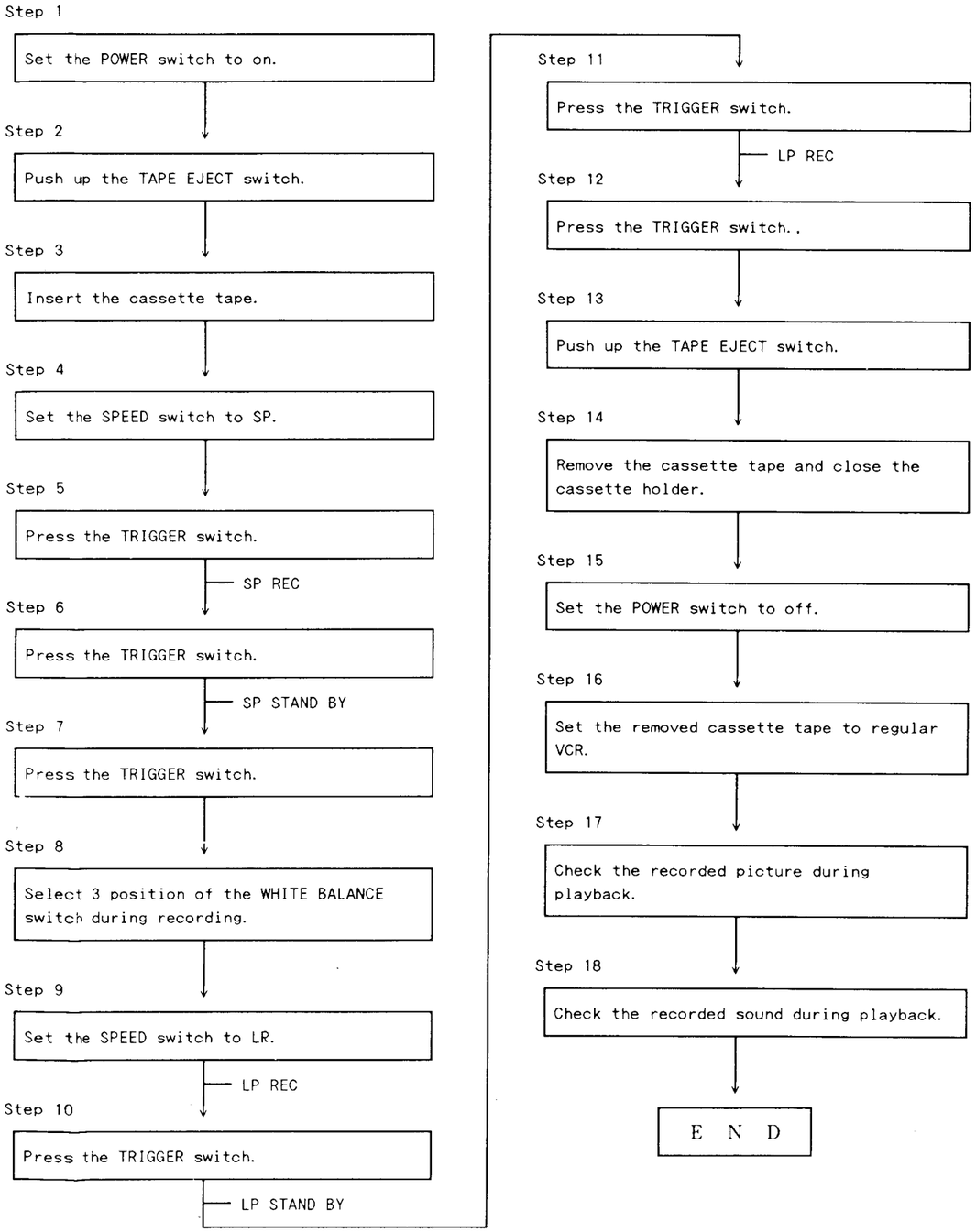
Fig. 9

5-5. Final Check

1) Play record by adjusted Deck.
2) Playback the tape put on VHS-C Adaptor (6A50747) by Test Equipment.
3) Confirm no defect on the picture and the voice.

= Remark =
This confirmation shall be done on both "SP" mode and "LP" mode.

10. TROUBLESHOOTING GUIDE



10-1

MECHANICAL PARTS LIST (DECK) VMC100

Ref.	Description	Part No.
1	Chassis Assy. (non repairable)	153603
2	Chassis	153604
41	Spring, Eject Lever	153605
42	Heatsink	153606
43	Boss, IC	153607
44	Guide T Side	153608
49	Loading Disc S	153609
65	Loading Disc T	153610
83	Gear, Timing	153611
84	Disc Guide 1	153612
85	Guide Plate 3	153613
86	Disc Guide 3	153614
87	Guide Plate 2	153615
88	Disc Guide 2	153616
89	Idle Gear 1	153617
90	Disc Gear, Lower	153618
91	Disc Gear, Upper	153619
92	Idle Gear 2	153620
97	Stopper Assy. (non repairable)	153621
98	Stopper MG	153622
101	Stopper, Guide	153623
106	Base, Cylinder	153624
110	Bracket, Chassis	153625
113	Guide Rail, TG	153626
114	LED PCB	153627
115	LED (infrared)	153628
117	Post, impedance	153629
118	Plate, Guide Rail	153630
120	Plate, Impedance	153631
121	Flange, Impedance	153632
122	Sleeve, Impedance	153633
123	Roller, Impedance	153634
124	Flange, Impedance A	153635
125	Bracket, MTG	153636
126	Full Erase Head	153637
128	Spring FE	153638
131	Sensor, Dew	153639
133	Bracket, Photo Sensor	153640
134	Photo Transistor	153647
135	PCB, Photo Transistor	153648
137	Adjust Plate, Guide Roller	153649
140	Guide Stand	153650
142	Cover, ACE	153651
146	Slide S	153652
152	Guide Roller S	153653
161	Slide T	153654

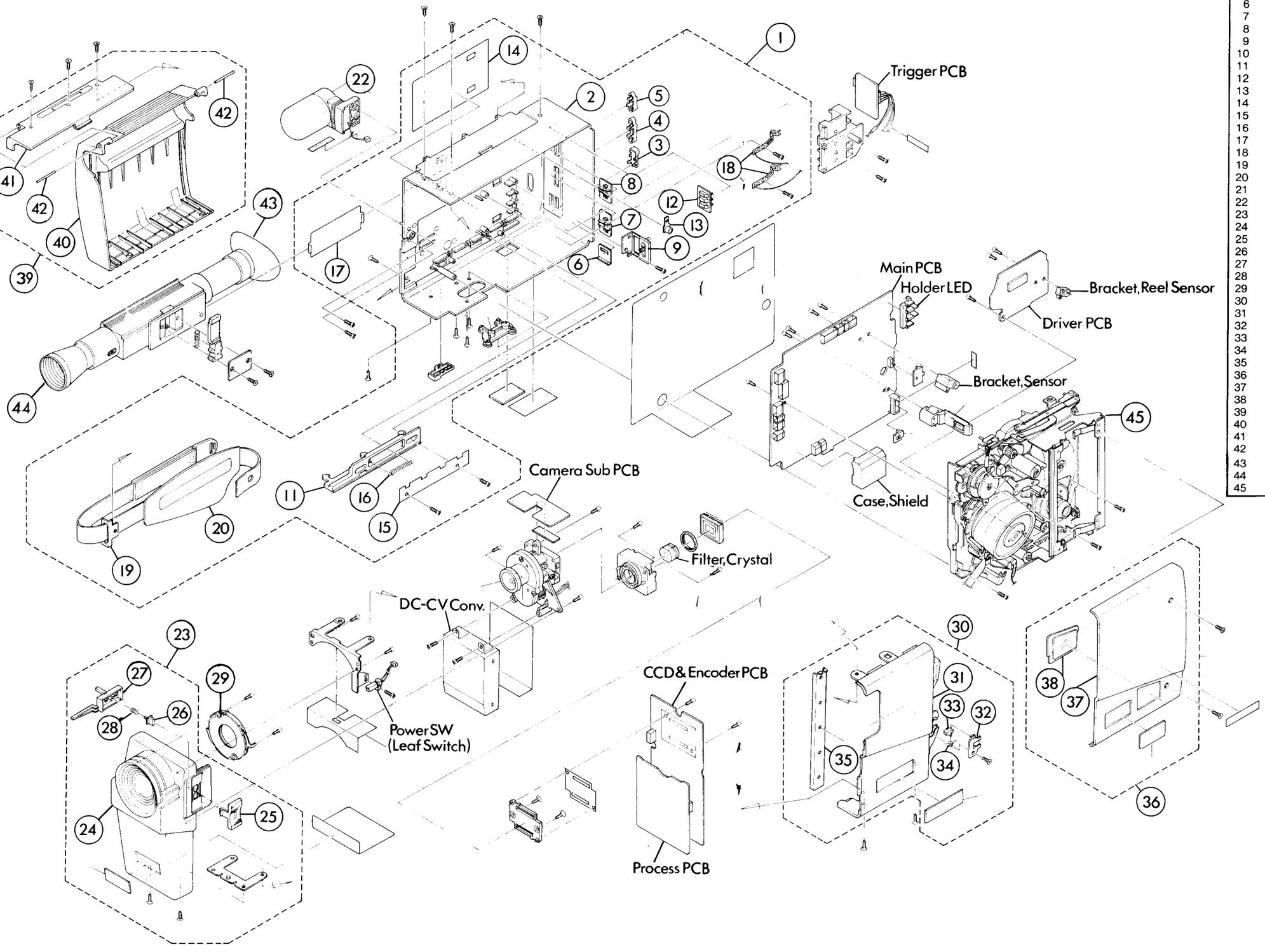
Ref.	Description	Part No.
167	Spring Plate, Slide	153655
170	Guide Roller T	153656
177	Pinch Lever	153657
187	Cap, Pinch	153658
188	Pinch Roller	153659
190	Spring	153660
191	Spring, Pinch	153661
193	ACE Head	153662
196	Spring Plate, ACE	153663
197	Head Plate, ACE	153664
199	Flange, ACE	153665
200	Tape Guide	153666
201	Spring, ACE	153667
209	Loading Motor	153668
225	Brake Lever	153669
230	Cam Gear	153670
231	Switch, Mode Select	153671
232	Lever Sub Assy.	153672
242	Lever Assy.	153673
246	Spring	153674
247	Bracket, Head	153675
254	Cam Lever	153676
257	Lever, BT	153677
272	Cap, BT Lever	153678
273	S Reel Disc	153679
289	Reel, S Band	153680
294	Gear	153681
295	Boss, Cassette	153682
305	Tu Clutch	153683
321	C Pulley	153684
345	Belt	153685
347	Capstan Motor	153686
349	Cover, Wheel	153687
350	Cover, PG	153688
351	Bracket, PCB	153689
352	Bracket, Drive	153690
353	Cylinder Assy.	153691
356	Drum, Lower	153692
375	Drum, Upper	153693
417	Cassette Holder Assy.	153694
456	Cassette Holder F.	153695
458	Cassette Spring	153696
465	Cassette Holder R.	153697
478	Damper	153698
L1-14	Nut, Hexagon Special M2.	153699
L1-15	E Ring 2.	153700
L1-16	E Ring 2.3	153701

ACCESSORIES PARTS LIST VMC100

Ref.	Description	Part No.
1	Battery Pack	153598
2	Cassette Adaptor	153599
3	DC Cable	153600
4	Shoulder Strap	153601
5	Carrying Case	153451
6	A.C. Adaptor/Charger	153641

16. EXPLODED VIEW / MECHANICAL PARTS LIST

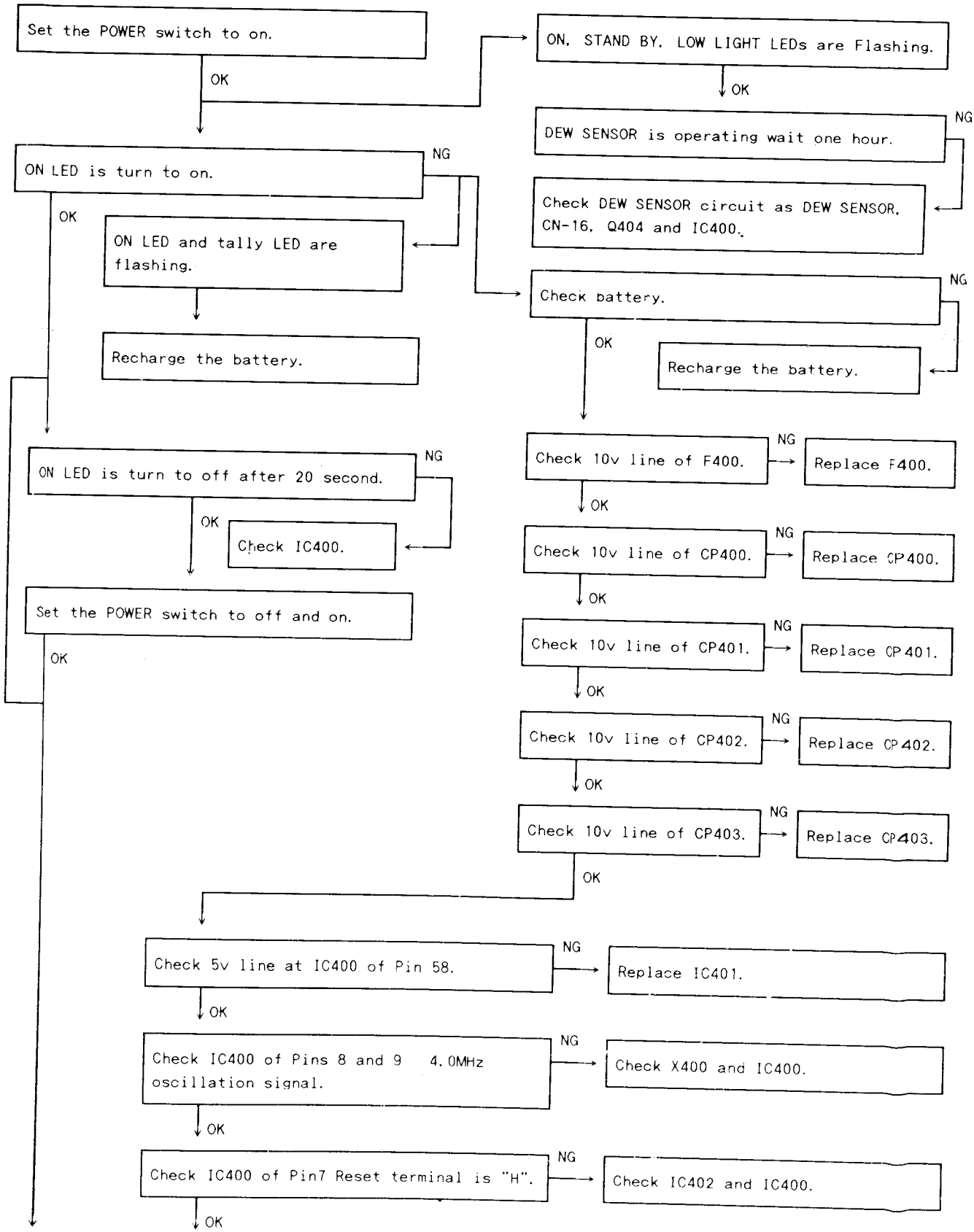
16-1 Exploded View (Cabinet & Front)

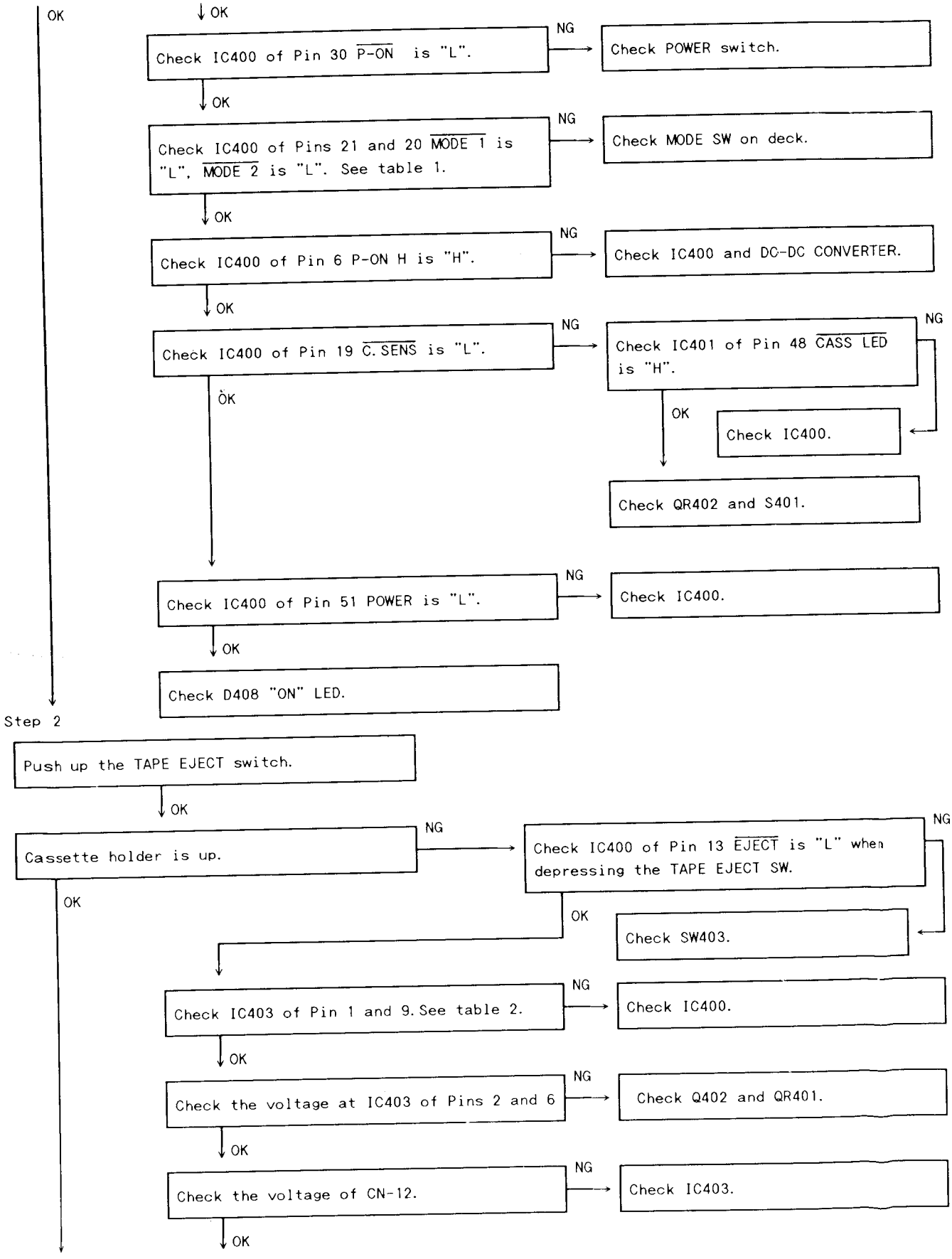


CABINET PARTS LIST VMC100

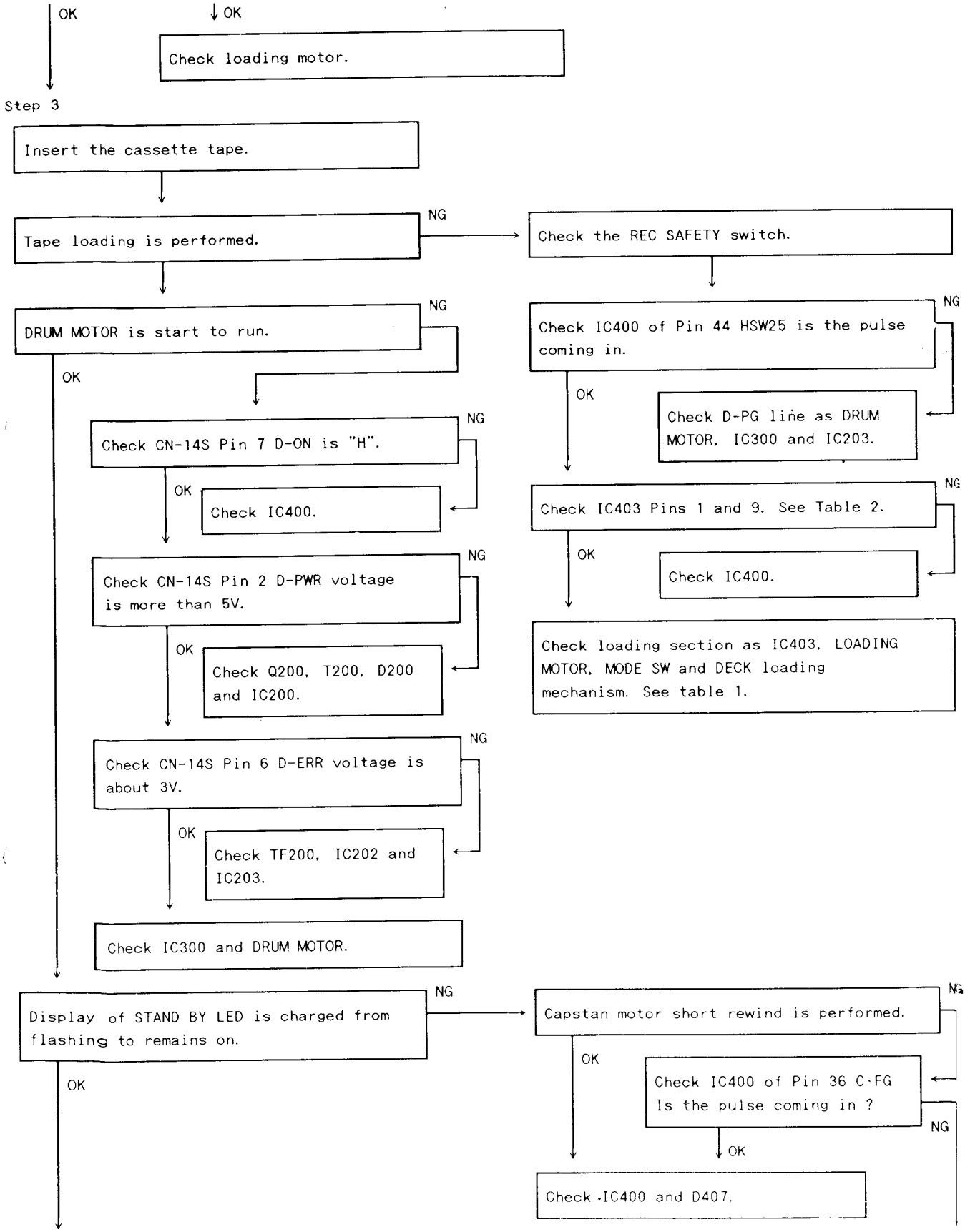
Ref.	Description	Part No.
1	Left Side Cabinet B Assy	153556
2	Cabinet B Left Side	153557
3	Eject Knob	153558
4	W/B Knob	153559
5	Tape S Knob	153560
6	Bracket 6	153561
7	Bracket 5	153562
8	Bracket 3	153563
9	Push Button S/S	153564
10	Knob Unlock	153565
11	Lock Lever	153566
12	Window LED Back	153567
13	Window LED Rec.	153568
14	Marking Plate Battery	153569
15	Cover Lock Lever	153570
16	Spring, Handle	153571
17	Plate, Spring	153572
18	Terminal, Battery	153573
19	Bracket, Belt	153574
20	Strap, Handle	153575
21	Holder, Camera Stand	153576
22	MIC Assy B	153577
23	Front Panel B Assy	153578
24	Front Panel B	153579
25	Power Knob	153580
26	Lock Lever Power	153581
27	Bracket 9	153582
28	Spring Power	153583
29	Shutter	153584
30	Right Side Cabinet B Assy	153585
31	Right Side Cabinet B	153586
32	Bracket, Lever	153587
33	Lever Tape Safety	153588
34	Spring Tape Safety	153589
35	Support Plate	153590
36	Cassette Cover B Assy	153591
37	Cover Cassette	153592
38	Cassette Window B	153593
39	Battery Cover Assy	153594
40	Battery Cover Main	153595
41	Battery Cover Sub.	153596
42	Spring Pin	153597
43	Viewfinder Eyepiece	153702
44	Viewfinder	153703
45	Deck Chassis Assembly	153603

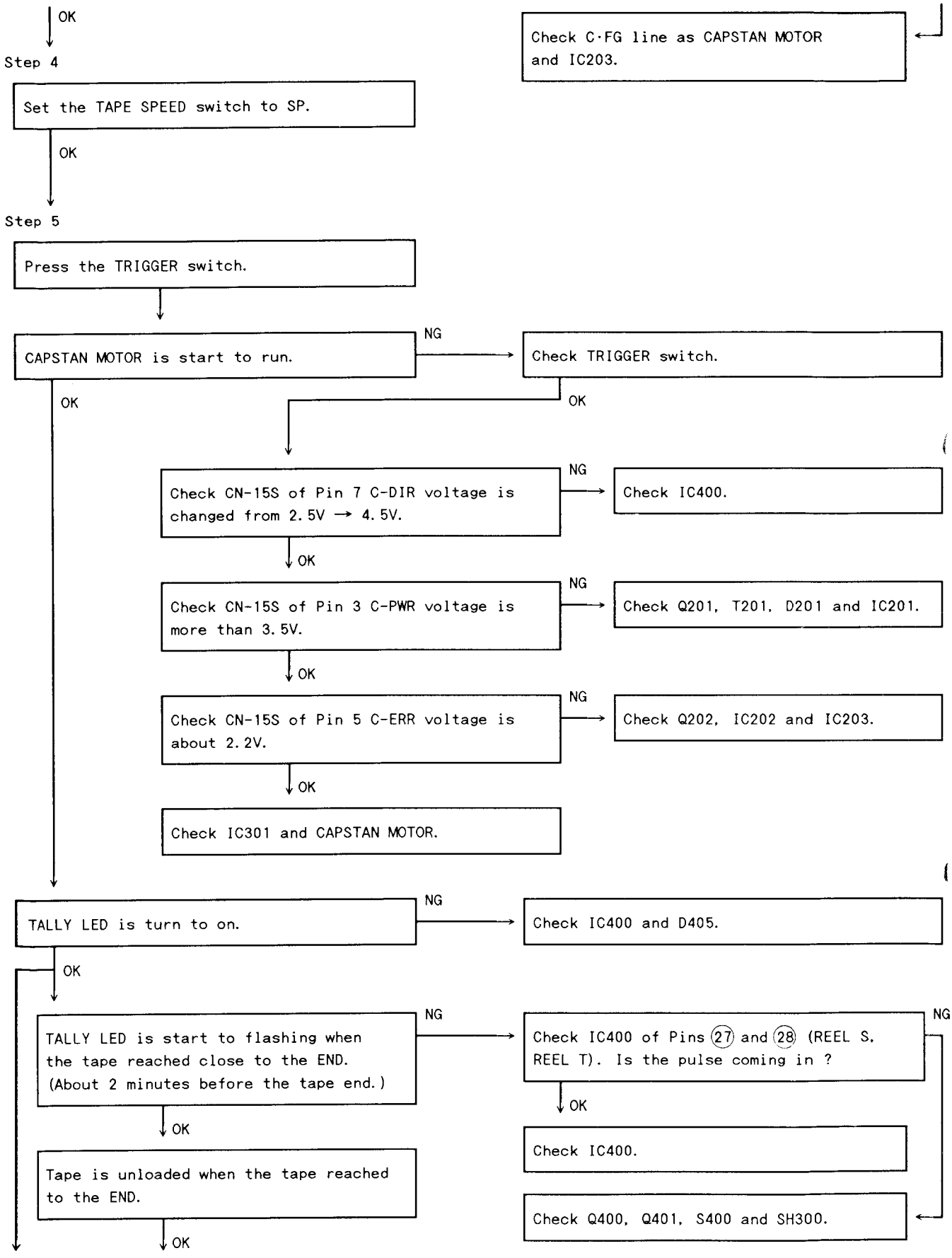
Step 1

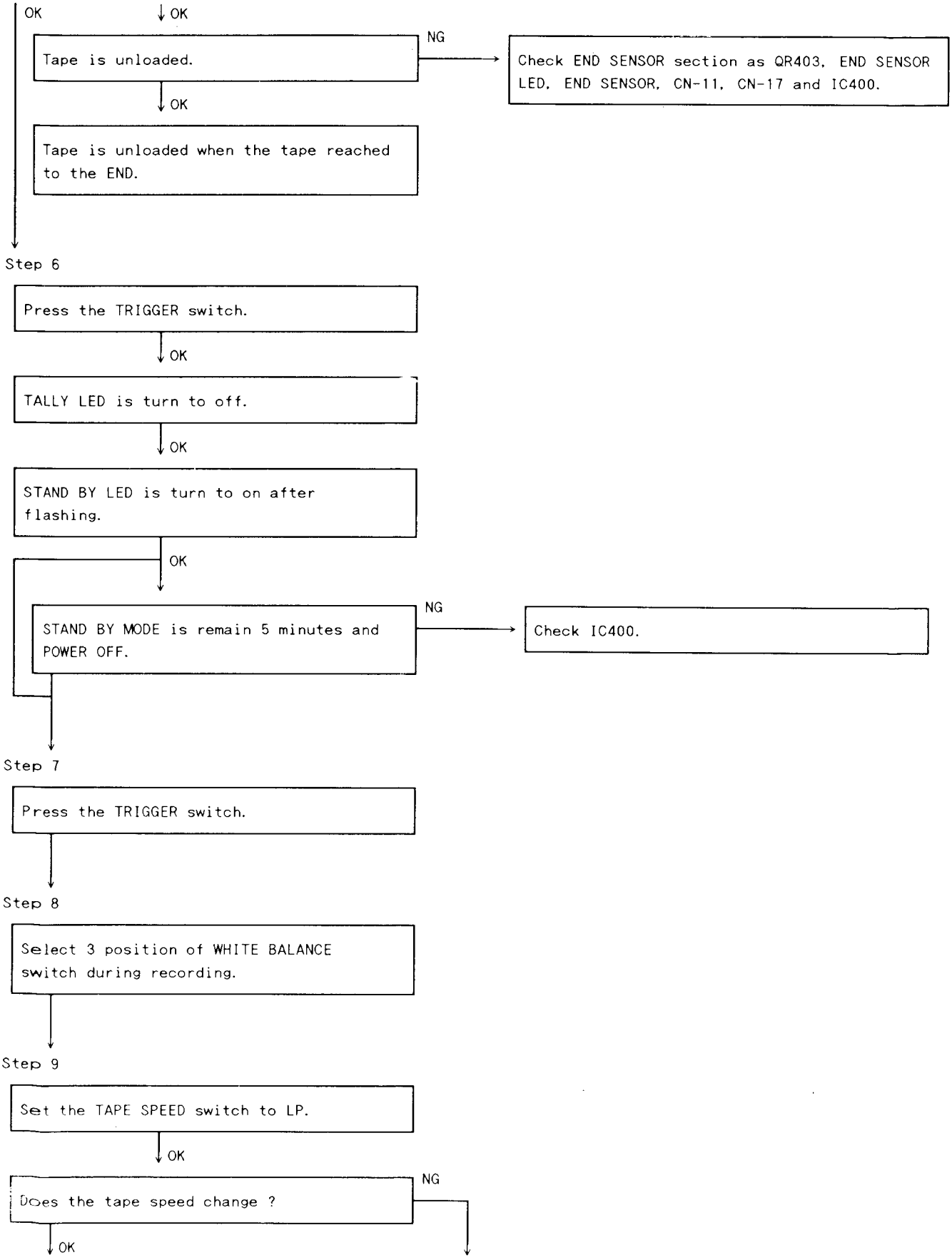

Set the POWER switch to on.
OK
ON, STAND BY, LOW LIGHT LEDs are Flashing.
OK
DEW SENSOR is operating wait one hour.
NG
Check DEW SENSOR circuit as DEW SENSOR, CN-16, Q404 and IC400.
ON LED is turn to on.
NG
OK
ON LED and tally LED are flashing.
Recharge the battery.
Check battery.
NG
OK
Recharge the battery.
ON LED is turn to off after 20 second.
NG
OK
Check IC400.
Set the POWER switch to off and on.
OK
Check 10v line of F400.
NG
Replace F400.
OK
Check 10v line of CP400.
NG
Replace CP400.
OK
Check 10v line of CP401.
NG
Replace CP401.
OK
Check 10v line of CP402.
NG
Replace CP402.
OK
Check 10v line of CP403.
NG
Replace CP403.
OK
Check 5v line at IC400 of Pin 58.
NG
Replace IC401.
OK
Check IC400 of Pins 8 and 9 4.0MHz oscillation signal.
NG
Check X400 and IC400.
OK
Check IC400 of Pin7 Reset terminal is "H".
NG
Check IC402 and IC400.
OK

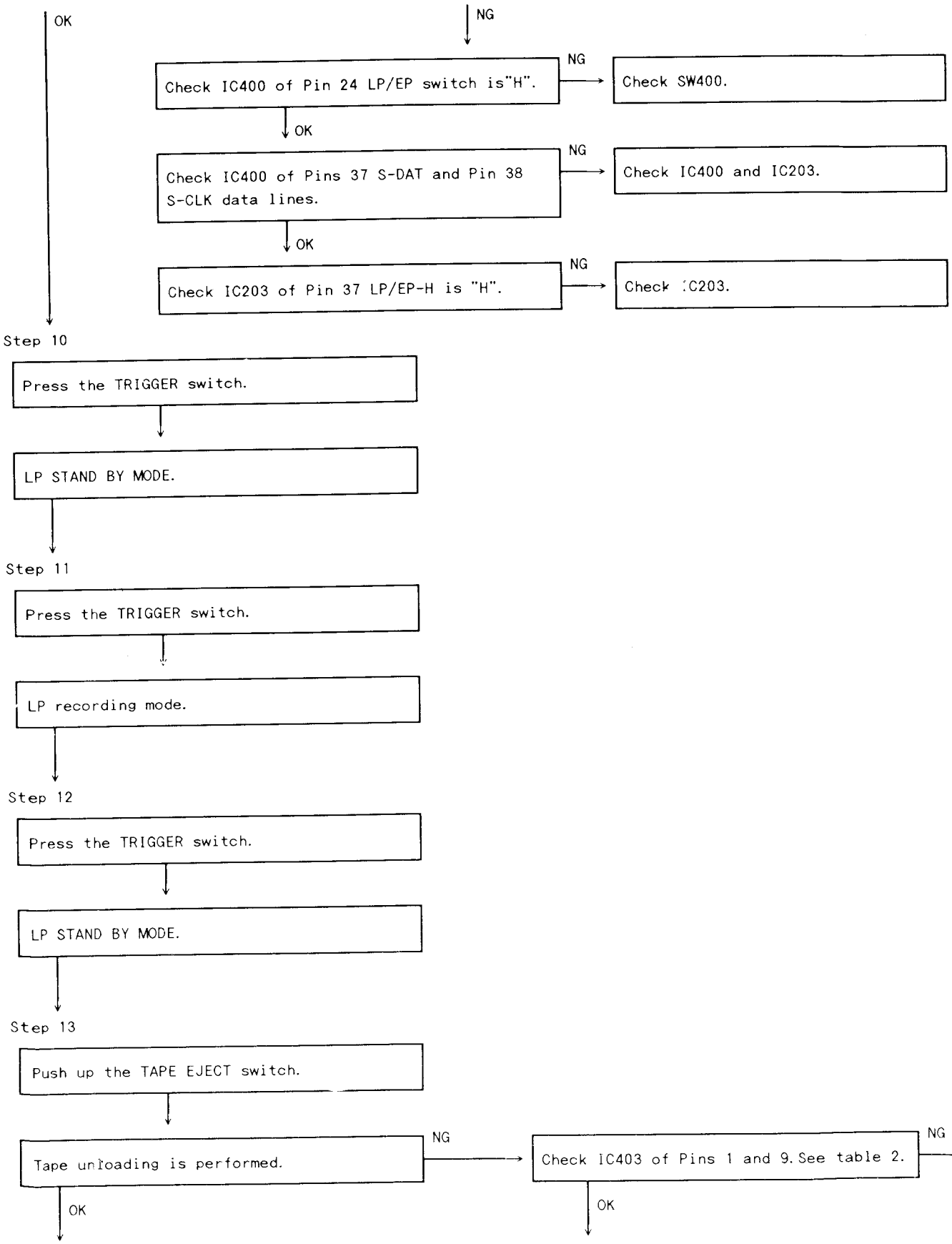

OK
OK
Check IC400 of Pin 30 P-ON is "L".
NG
Check POWER switch.
OK
Check IC400 of Pins 21 and 20 MODE 1 is "L", MODE 2 is "L". See table 1.
NG
Check MODE SW on deck.
OK
Check IC400 of Pin 6 P-ON H is "H".
NG
Check IC400 and DC-DC CONVERTER.
OK
Check IC400 of Pin 19 C.SENS is "L".
NG
Check IC401 of Pin 48 CASS LED is "H".
NG
OK
Check IC400.
Check QR402 and S401.
Check IC400 of Pin 51 POWER is "L".
NG
Check IC400.
OK
Check D408 "ON" LED.
Step 2
Push up the TAPE EJECT switch.
OK
Cassette holder is up.
NG
Check IC400 of Pin 13 EJECT is "L" when depressing the TAPE EJECT SW.
NG
OK
OK
Check SW403.
Check IC403 of Pin 1 and 9. See table 2.
NG
Check IC400.
OK
Check the voltage at IC403 of Pins 2 and 6
NG
Check Q402 and QR401.
OK
Check the voltage of CN-12.
NG
Check IC403.
OK

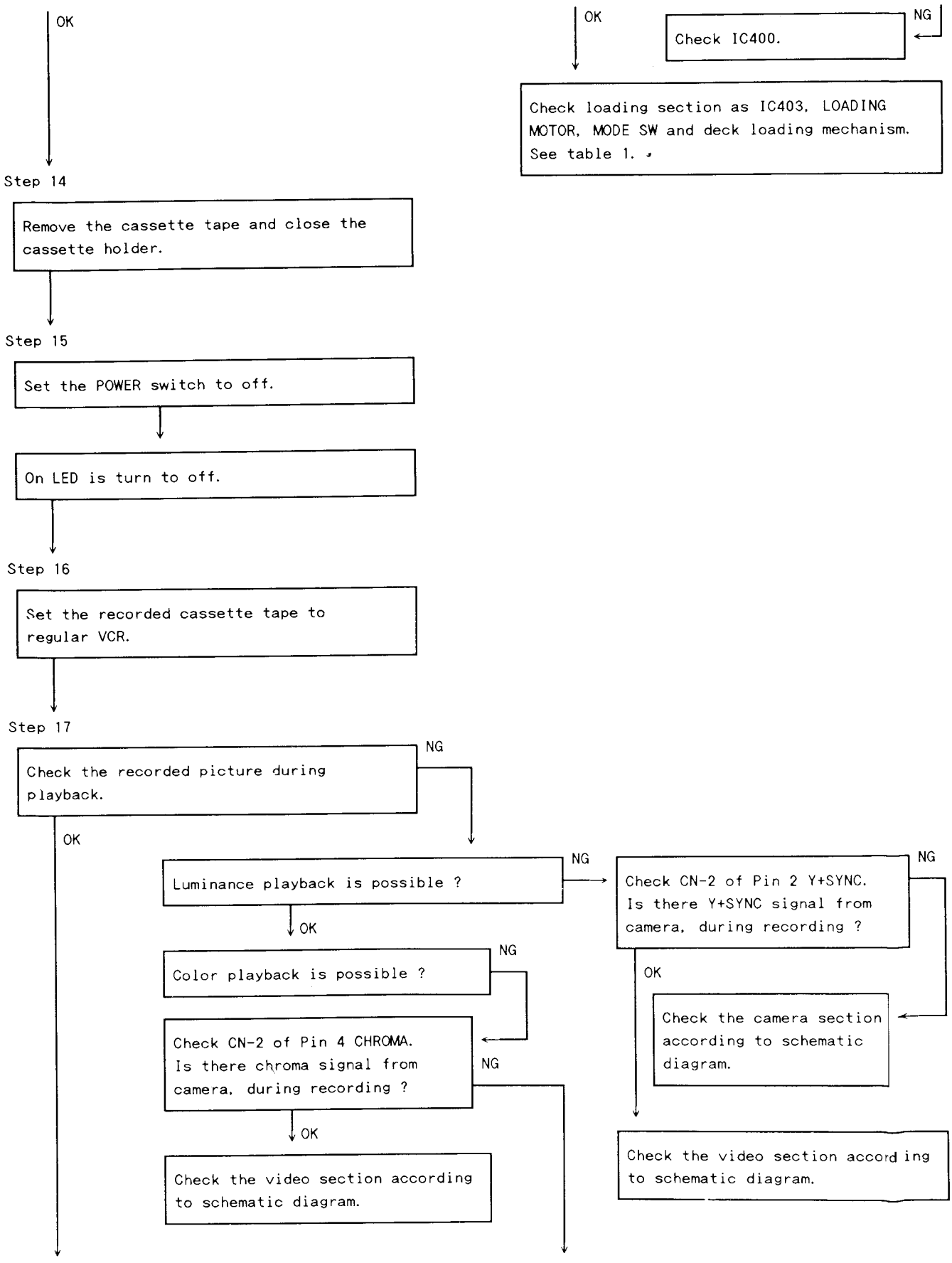
10-3

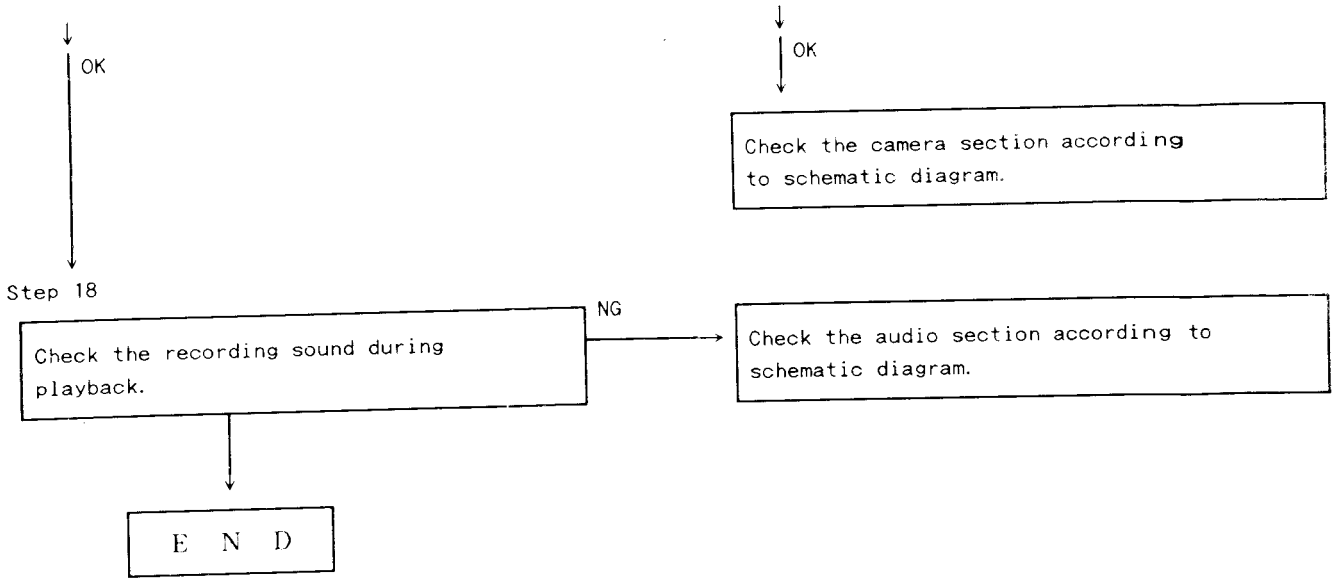

OK
OK
Check loading motor.
Step 3
Insert the cassette tape.
Tape loading is performed.
NG
Check the REC SAFETY switch.
DRUM MOTOR is start to run.
NG
OK
Check IC400 of Pin 44 HSW25 is the pulse coming in.
NG
OK
Check D-PG line as DRUM MOTOR, IC300 and IC203.
Check CN-14S Pin 7 D-ON is "H".
NG
OK
Check IC400.
Check IC403 Pins 1 and 9. See Table 2.
NG
OK
Check IC400.
Check CN-14S Pin 2 D-PWR voltage is more than 5V.
NG
OK
Check Q200, T200, D200 and IC200.
Check loading section as IC403, LOADING MOTOR, MODE SW and DECK loading mechanism. See table 1.
Check CN-14S Pin 6 D-ERR voltage is about 3V.
NG
OK
Check TF200, IC202 and IC203.
Check IC300 and DRUM MOTOR.
Display of STAND BY LED is charged from flashing to remains on.
NG
OK
Capstan motor short rewind is performed.
NG
OK
Check IC400 of Pin 36 C-FG Is the pulse coming in ?
NG
OK
Check IC400 and D407.


OK
Step 4
Check C·FG line as CAPSTAN MOTOR and IC203.
Set the TAPE SPEED switch to SP.
OK
Step 5
Press the TRIGGER switch.
CAPSTAN MOTOR is start to run.
NG
Check TRIGGER switch.
OK
OK
Check CN-15S of Pin 7 C-DIR voltage is changed from 2.5V → 4.5V.
NG
Check IC400.
OK
Check CN-15S of Pin 3 C-PWR voltage is more than 3.5V.
NG
Check Q201, T201, D201 and IC201.
OK
Check CN-15S of Pin 5 C-ERR voltage is about 2.2V.
NG
Check Q202, IC202 and IC203.
OK
Check IC301 and CAPSTAN MOTOR.
TALLY LED is turn to on.
NG
Check IC400 and D405.
OK
TALLY LED is start to flashing when the tape reached close to the END. (About 2 minutes before the tape end.)
NG
Check IC400 of Pins (27) and (28) (REEL S, REEL T). Is the pulse coming in ?
NG
OK
Check IC400.
OK
Tape is unloaded when the tape reached to the END.
Check Q400, Q401, S400 and SH300.
OK


OK
OK
Tape is unloaded.
NG
Check END SENSOR section as QR403, END SENSOR LED, END SENSOR, CN-11, CN-17 and IC400.
OK
Tape is unloaded when the tape reached to the END.
Step 6
Press the TRIGGER switch.
OK
TALLY LED is turn to off.
OK
STAND BY LED is turn to on after flashing.
OK
STAND BY MODE is remain 5 minutes and POWER OFF.
NG
Check IC400.
Step 7
Press the TRIGGER switch.
Step 8
Select 3 position of WHITE BALANCE switch during recording.
Step 9
Set the TAPE SPEED switch to LP.
OK
Does the tape speed change ?
NG
OK


OK
NG
Check IC400 of Pin 24 LP/EP switch is"H".
NG
Check SW400.
OK
Check IC400 of Pins 37 S-DAT and Pin 38 S-CLK data lines.
NG
Check IC400 and IC203.
OK
Check IC203 of Pin 37 LP/EP-H is "H".
NG
Check IC203.
Step 10
Press the TRIGGER switch.
LP STAND BY MODE.
Step 11
Press the TRIGGER switch.
LP recording mode.
Step 12
Press the TRIGGER switch.
LP STAND BY MODE.
Step 13
Push up the TAPE EJECT switch.
Tape unloading is performed.
NG
Check IC403 of Pins 1 and 9. See table 2.
NG
OK


OK
OK
NG
Check IC400.
Check loading section as IC403, LOADING MOTOR, MODE SW and deck loading mechanism. See table 1.
Step 14
Remove the cassette tape and close the cassette holder.
Step 15
Set the POWER switch to off.
On LED is turn to off.
Step 16
Set the recorded cassette tape to regular VCR.
Step 17
Check the recorded picture during playback.
NG
OK
Luminance playback is possible ?
NG
OK
Check CN-2 of Pin 2 Y+SYNC. Is there Y+SYNC signal from camera, during recording ?
NG
Color playback is possible ?
NG
OK
Check the camera section according to schematic diagram.
Check CN-2 of Pin 4 CHROMA. Is there chroma signal from camera, during recording ?
NG
OK
Check the video section according to schematic diagram.
Check the video section according to schematic diagram.



When the SYSTEM CONTROL IC has run away SYSTEM CONTROL IC will not accept any mode. At this time, disconnect the battery to reset the SYSTEM CONTROL IC.

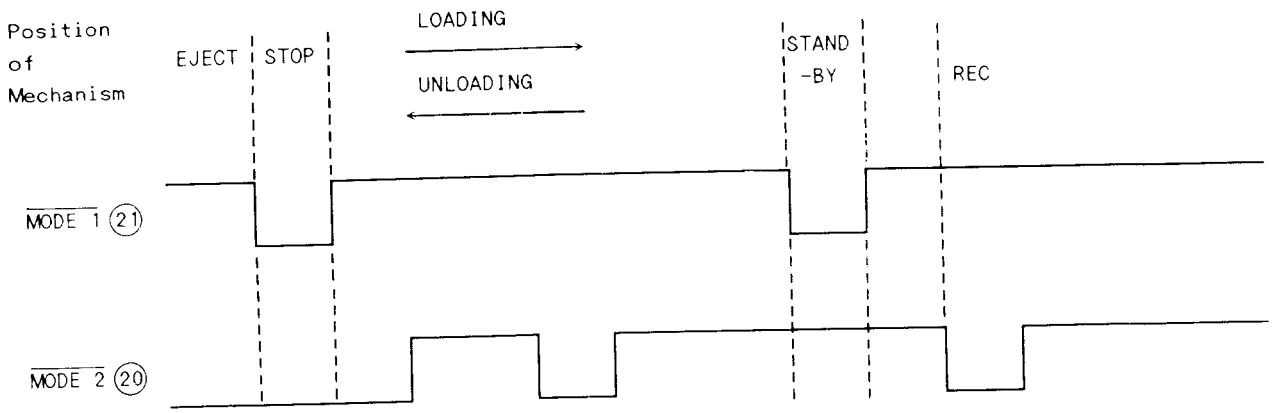


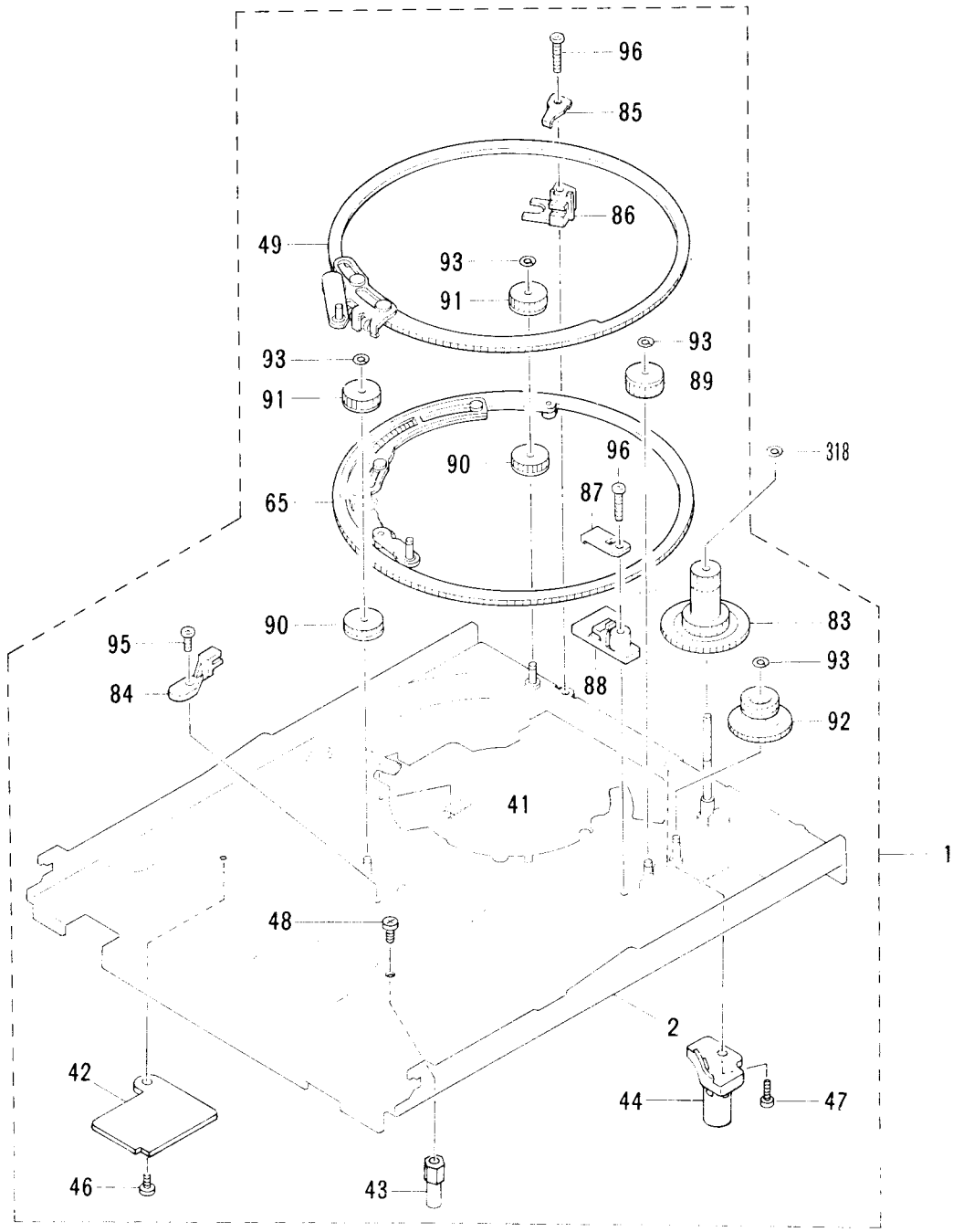
Table 1

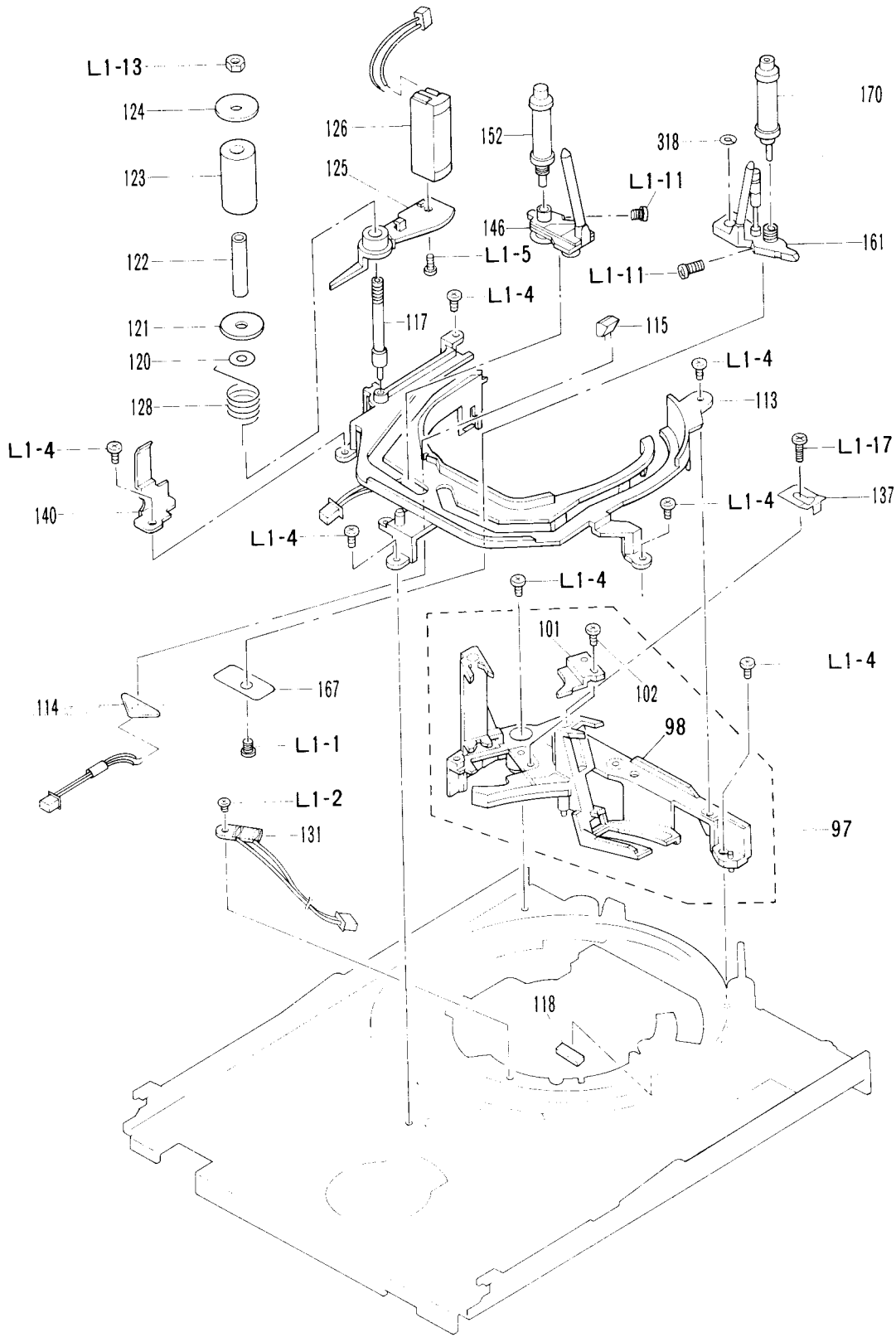
9 PIN	1 PIN	7 PIN	3 PIN	MODE
L	L	OPEN	OPEN	STOP
H	L	H	L	FWD LOAD
L	H	L	H	RVS UNLOAD
H	H	L	L	BRAKE

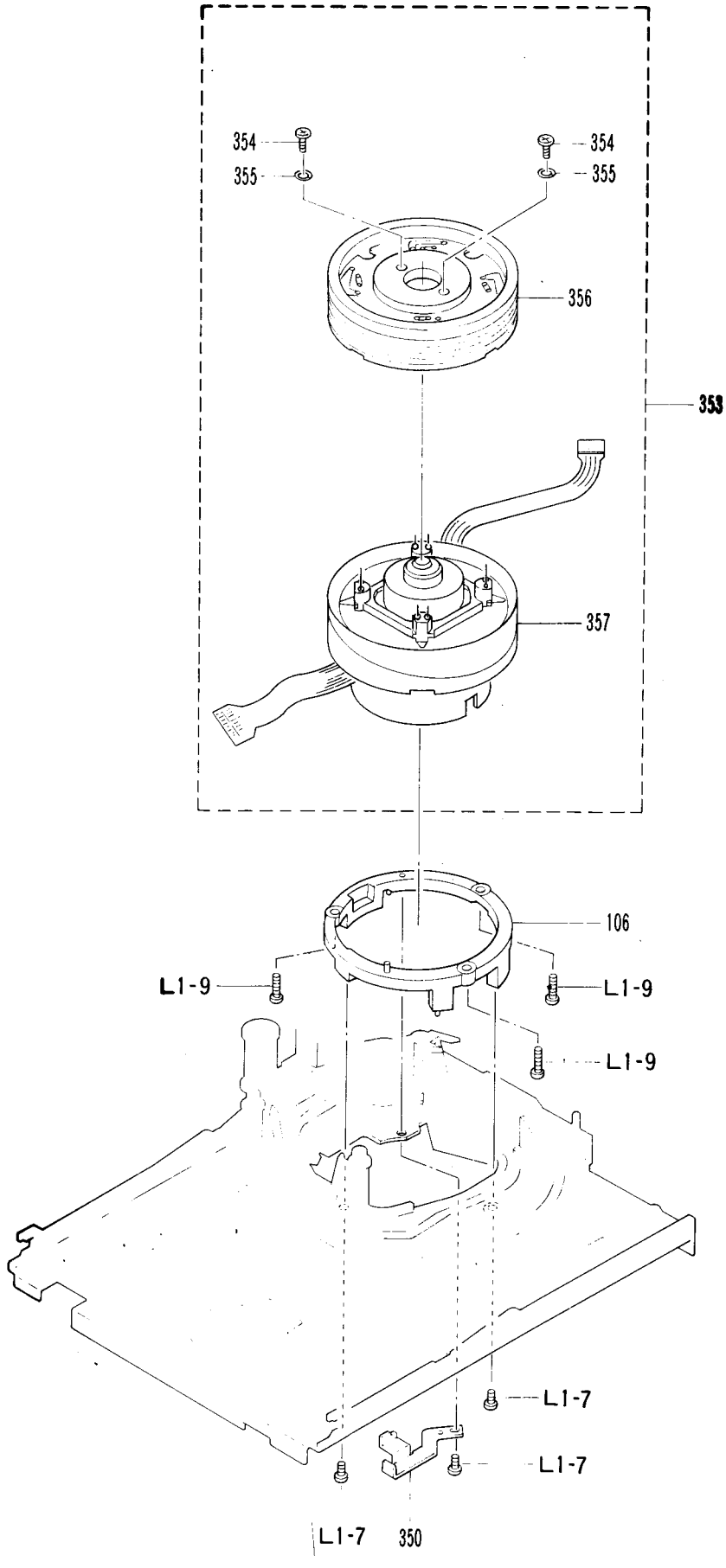
Table 2

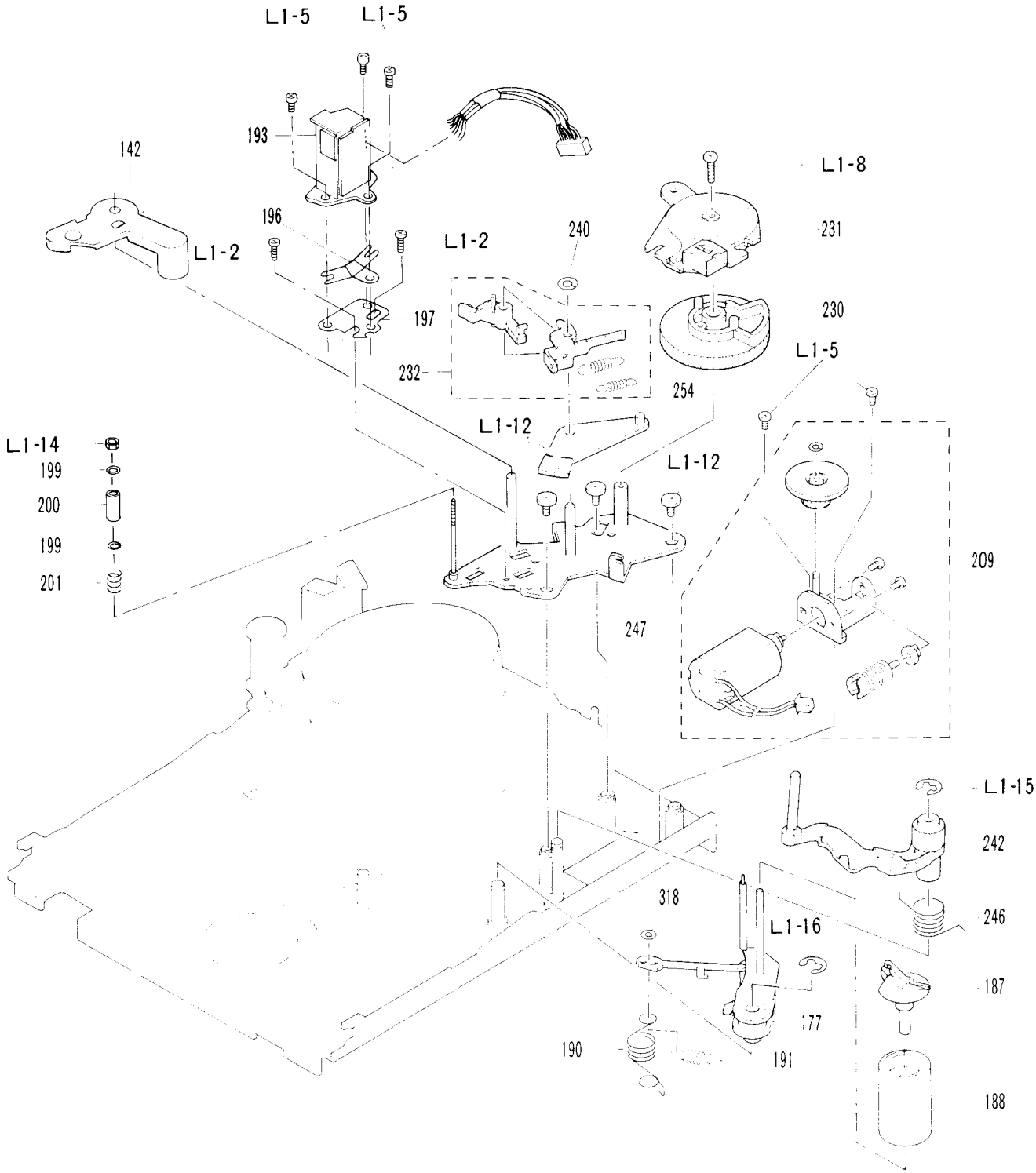
16-3 Exploded view (Deck)

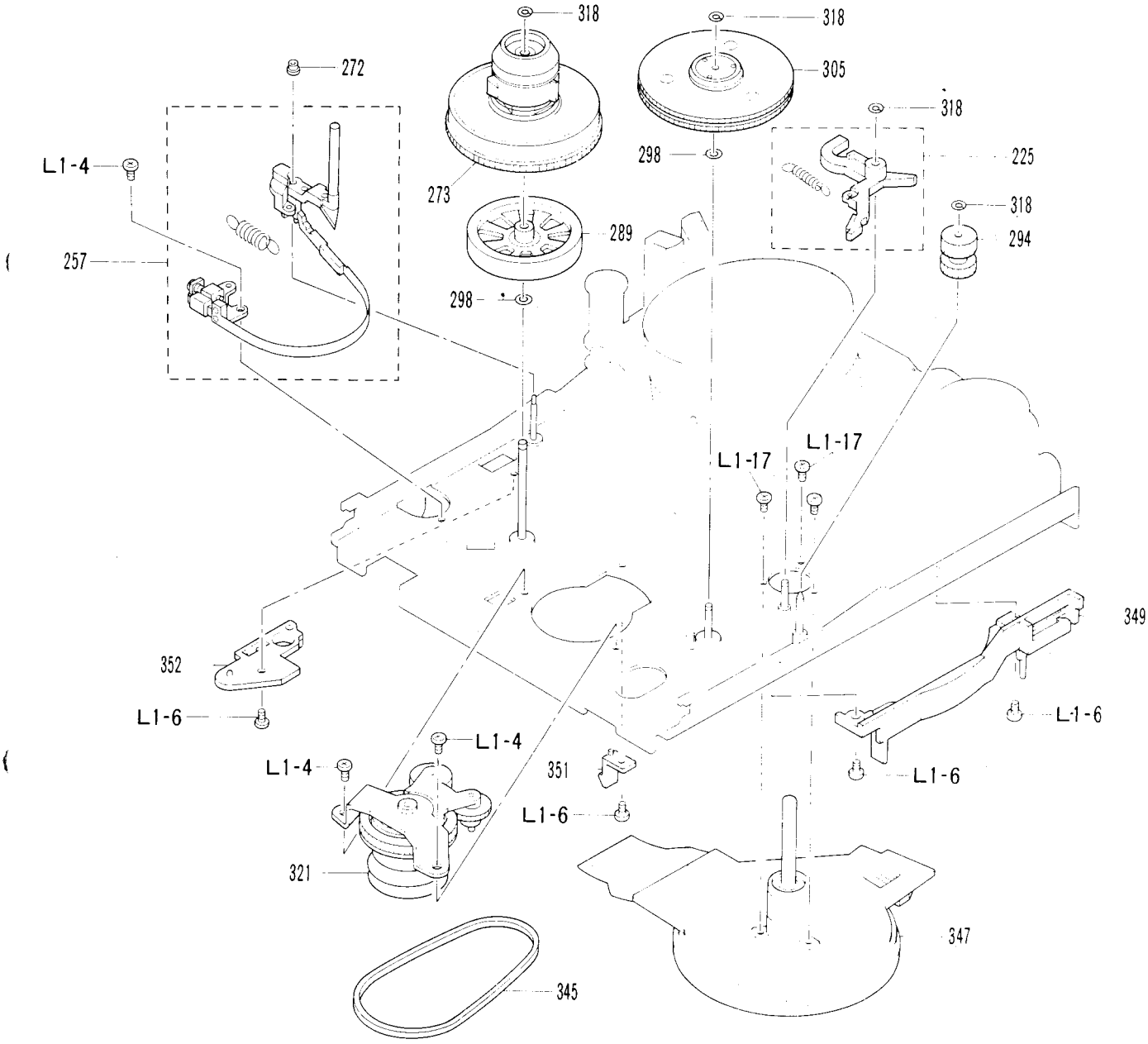
For Mechanical Parts List please refer to page 39.

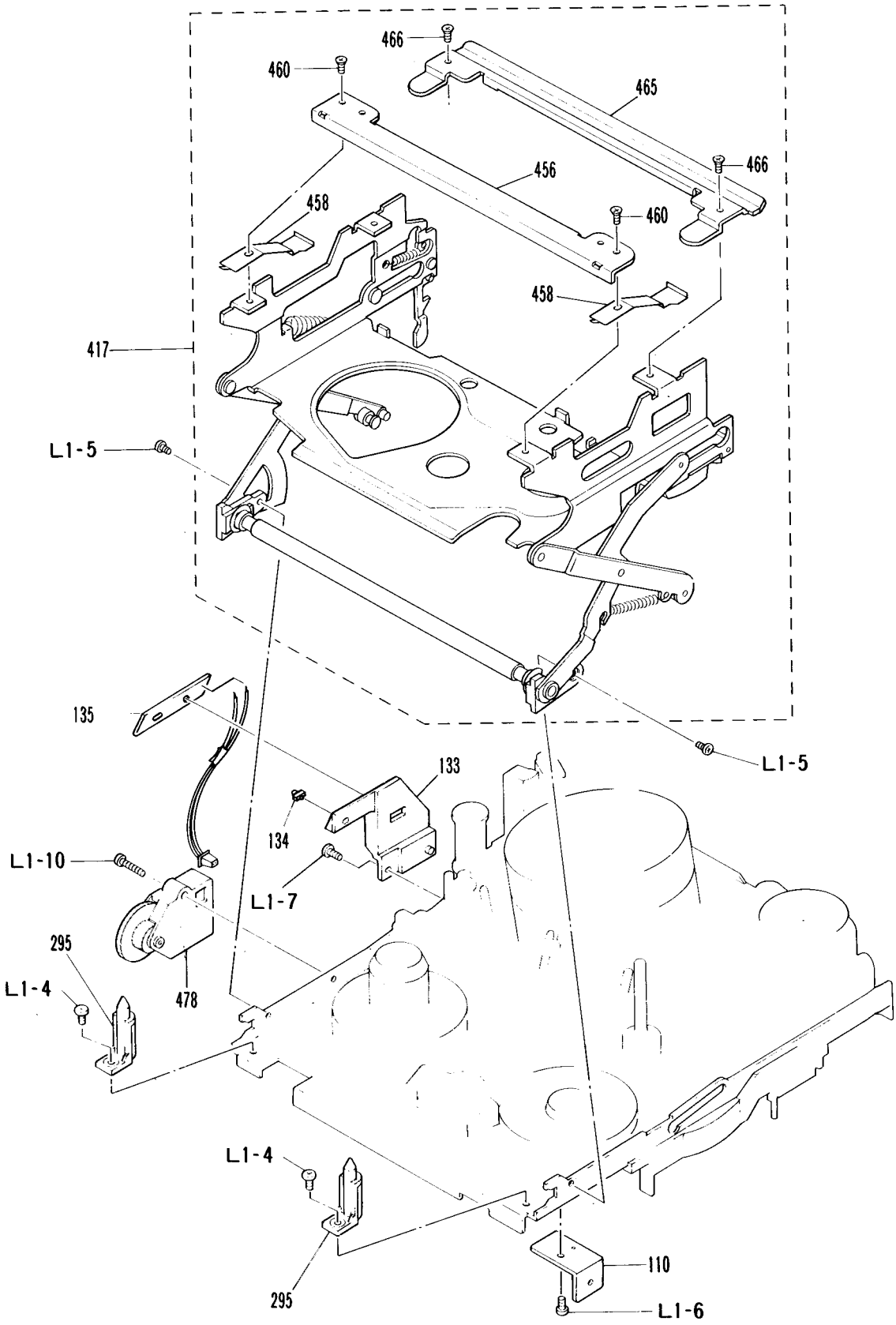



L1-13
124
123
122
121
120
128
L1-4
140
126
125
152
146
L1-5
L1-4
117
L1-4
L1-4
L1-4
L1-4
L1-4
L1-1
L1-2
131
167
114
101
102
98
97
118
318
L1-11
L1-11
161
170
115
113
L1-17
137


354
355
354
355
356
353
357
106
L1-9
L1-9
L1-9
L1-7
L1-7
L1-7
350

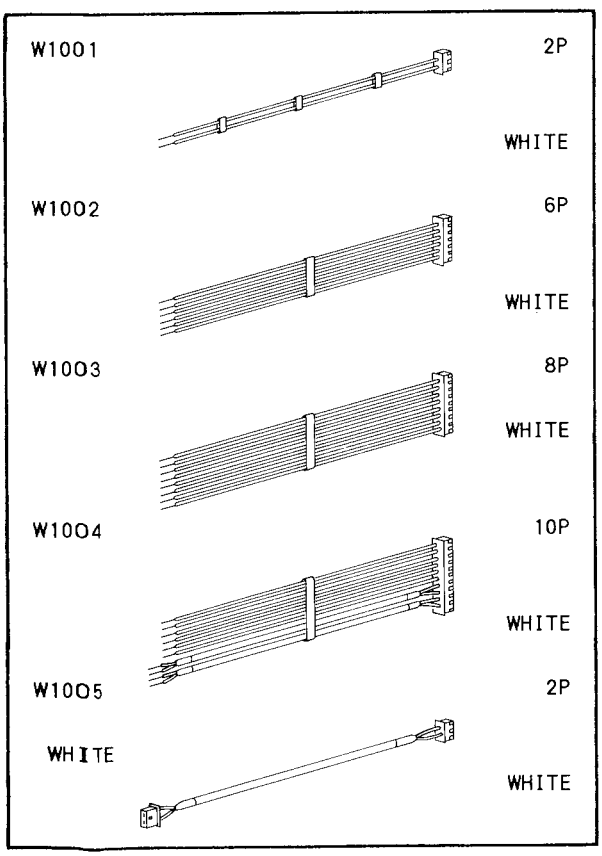

L1-5
L1-5
193
142
196
L1-2
L1-2
240
L1-8
231
230
197
232
254
L1-5
L1-12
L1-12
L1-14
199
200
199
201
209
247
L1-15
242
318
246
L1-16
187
177
190
191
188

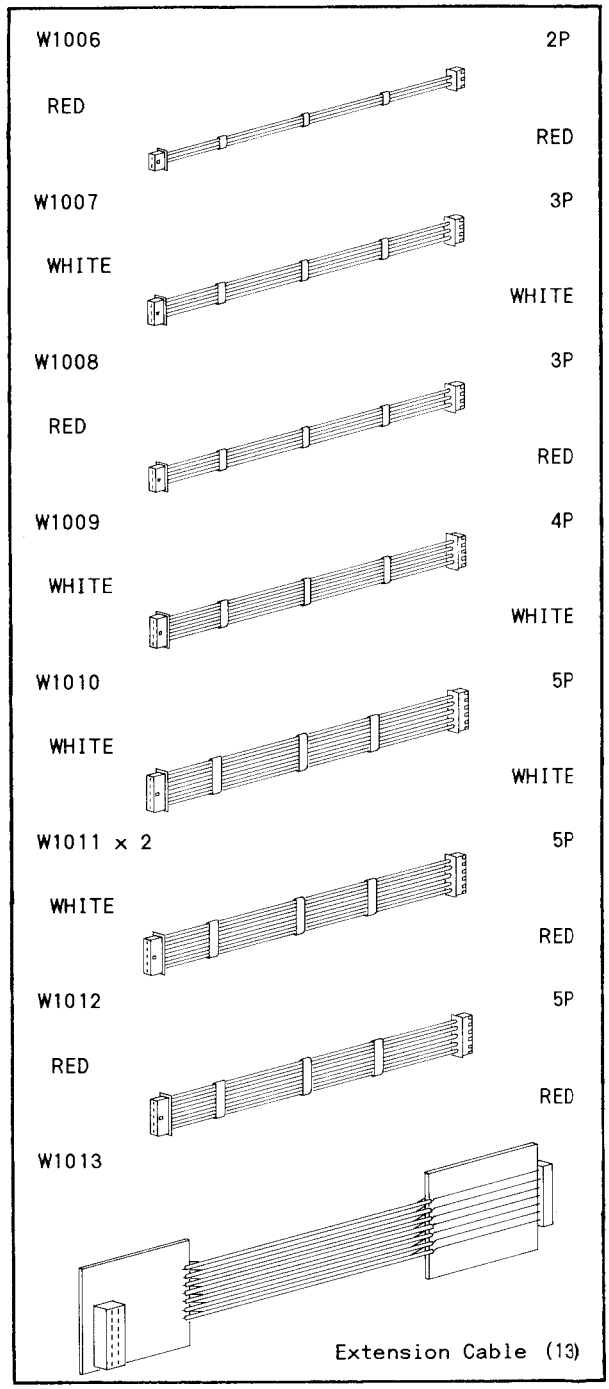

318
318
272
305
318
L1-4
298
225
273
318
289
294
257
298
L1-17
L1-17
349
352
L1-6
L1-6
L1-4
L1-4
351
L1-6
L1-6
321
347
345


466
460
465
456
466
458
460
458
417
L1-5
135
133
L1-5
134
L1-10
L1-7
295
L1-4
478
L1-4
295
110
L1-6

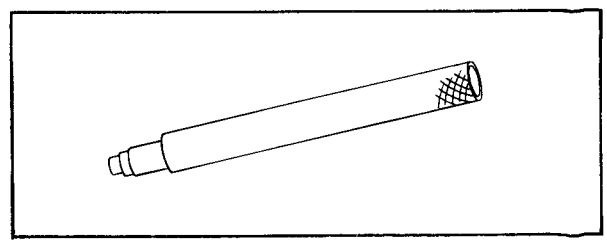
8-3 TEST EQUIPMEMT AND TOOLS

1. OSCILLOSCOPE : Dual Trace 40 MHz 5 mV/Div.
   10 : 1 Probe
   1 : 1 Probe
2. FREQUENCY COUNTER
3. VECTORSCOPE
4. TV MONITOR
5. DC VOLTMETER
6. AC VOLTMETER (R.M.S.)
7. SPEECTRUM ANALYZER
8. DC POWER SUPPLY (DC 10V 3A)
9. PATTERN GENERATOR
10. RESISTOR : 6.8K ohm } L.P.F.
11. CAPACITOR : 0.0012 μF }
12. ATTENUATOR
13. VIEWER : DNP standard color viewer model-V
    Available Area 250x190 mm
    Lamp - Toshiba FL 10W w-PL-Bx4
    3200 degrees K
14. AUDIO OSCILLATOR
15. DEFLECTION CHART :
    - Gray Scale Chart
    - Color Bar Chart
    - Inmega Chart
16. FILTER :Kenko (W2, C4, C12)
17. TEST BOARD
18. VIDEO DECK (Test Equipment)
19. ALIGNMENT TAPE : FC6N
20. EXTENSION CABLES





21. FOCUS ADJUST DRIVER



22. SIEMENF STAR CHART

ELECTRICAL PARTS LIST VMC100

Ref. No.	Description	Part No.
Switches		
SW400	1 Pole 2 Way	153810
SW401	2 Pole 3 Way	153811
SW403	1 Pole 1 Way	153812
SW402	Rec Safety	153813
SW801	Sw Push SKEALH0001	153830
LSW1	Leaf Switch 1273NBK	153831
Miscellaneous		
	D.C. Lead Assy.	153865
PCB1A	Main PCB Assy.	153817
PCB2A	CCD & Encoder PCB Assy.	153819
PCB3A	Process PCB Assy.	153821
PCB4A	DC-DC Conv. PCB Assy.	153823
PCB 5A	Driver PCB Assy	153825
PCB 6A	Camera Sub PCB Assy	153827
PCB 7A	Trigger PCB Assy	153829
CP401-403	IC Protector ICP-F20	153832
CP400	IC Protector ICP-F25	153833
S400	Sensor Take Up Reel	153834
S401	Sensor Cass. In Reel	153835
BR1	Sensor Bracket	153838
S300	Sensor Reel GP2S09B	153839
BR2	Bracket, Reel Sensor	153840
F400	Fuse T-4A	153836
JK801	DC Jack	153867
	Insulator G 6P50182	153868

7. IC PIN FUNCTION DESCRIPTION

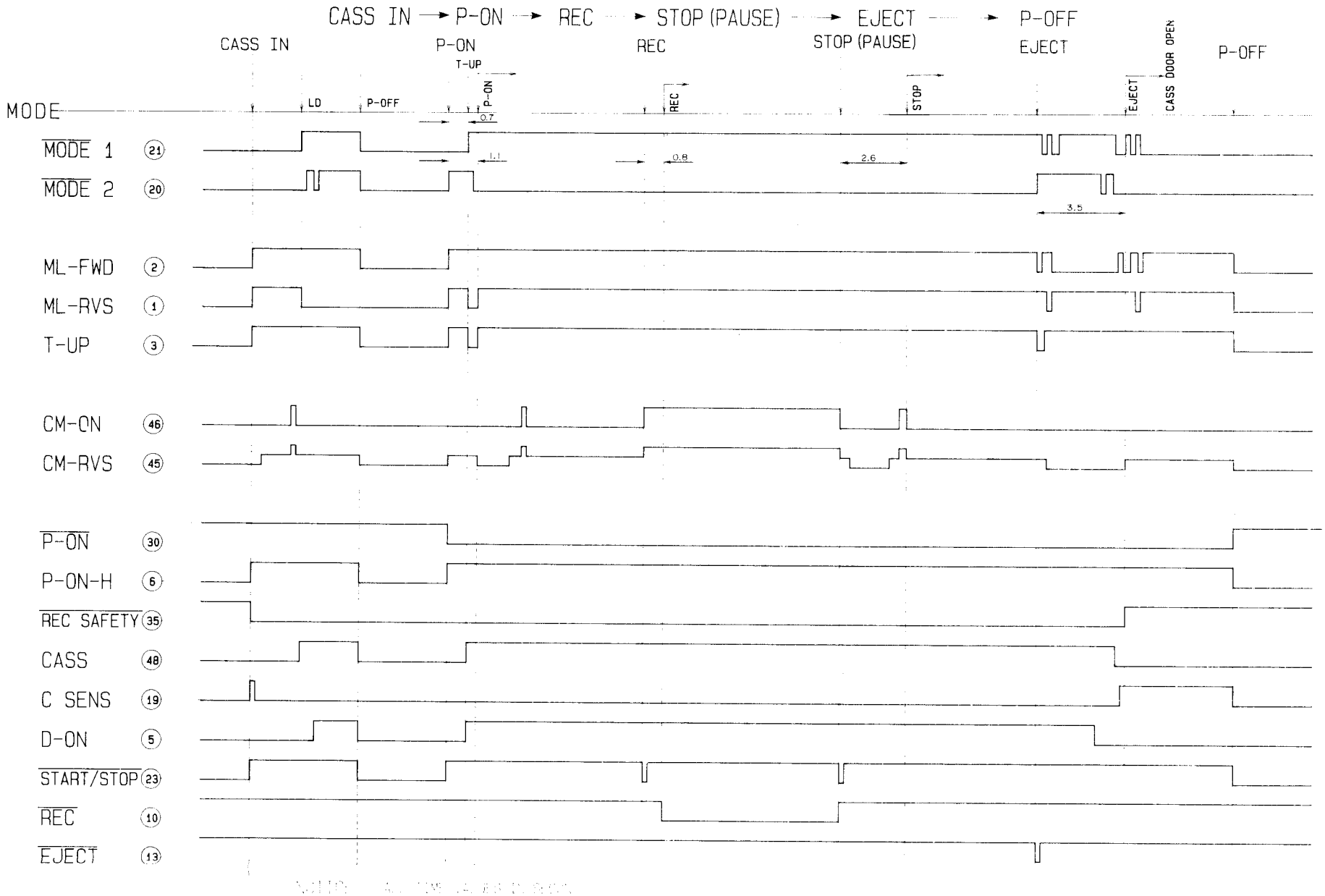
7-1 SYSCON IC μPD75106G (IC400)

Pin No.	IN/OUT	Signal name	Function
1	OUT	ML-RVS	Loading Motor Reverse at "H"
2	OUT	ML-FWS	Loading Motor Forward at "H"
3	OUT	T-UP	Torque Up at "H"
4	-	-	-
5	OUT	D-ON	Drum Motor On at "H"
6	OUT	P-ON H	Power On at "H"
7	IN	RESET	Reset at "L"
8	OUT	X2	System Clock
9	IN	X1	System Clock
10	OUT	REC	Record at "L"
11	-	-	-
12	-	-	-
13	IN	EJECT	Eject at "L"
14	OUT	D-PB	Delayed Play Back at "L"
15	-	-	-
16	-	-	-
17	-	-	-
18	-	-	-
19	IN	C.SENS	Cassette Sensor On at "H"
20	IN	MODE 2	Mode Switch Detector
21	IN	MODE 1	Mode Switch Detector
22	IN	L.L.A	Low Light Alarm Control On at "L"
23	IN	START/STOP	Start-Stop Control at "L"
24	IN	SP/LP SW	Speed Control SP at "L" .LP at "H"
25	IN	POW BUTTON	Not In Use
26	IN	Vss	Vss (GND)
27	IN	REEL S	Supply Reel Sensor Pulse
28	IN	REEL T	Take Up Reel Sensor Pulse
29	IN	POW INT	Not In Use
30	IN	P-ON	Power Control On at "L"
31	IN	B.CHK 2	Battery Check-2
32	IN	B.CHK 1	Battery Check-1
33	IN	E SENS	End Sensor On at "L"
34	IN	DEW	Dew Sensor On at "L"
35	IN	REC SAFETY	Rec Safety SW On at "L"
36	IN	C-FG	Capstan FG Pulse
37	OUT	S-DAT	Serial Data
38	OUT	S-CLK	Serial Clock
39	-	-	-
40	-	-	-
41	IN	LP H	LP at "H"
42	-	-	-
43	-	-	-
44	IN	HSW 25	Head Switching Pulse
45	OUT	CM-RVS	Capstan Motor Reverse at "H"
46	OUT	CM-ON	Capstan Motor On at "H"
47	OUT	E-LED	End Sensor LED On at "L"
48	OUT	CASS LED	Cassette Sensor LED On at "L"
49	OUT	STANDBY	Standby LED On at "L"
50	OUT	LOW LIGHT	Low Light LED On at "L"
51	OUT	POW.	Power LED On at "L"
52	OUT	TALL-Y	Tally LED On at "L"
53	OUT	P143	Port 143
54	OUT	P142	Port 142
55	OUT	P141	Port 141
56	OUT	P140	Port 140
57	-	NC	-
58	IN	Voo	Voo
59	IN	P33	Port 33
60	IN	P32	Port 32
61	IN	P31	Port 31
62	IN	P30	Port 30
63	-	-	-
64	-	-	-

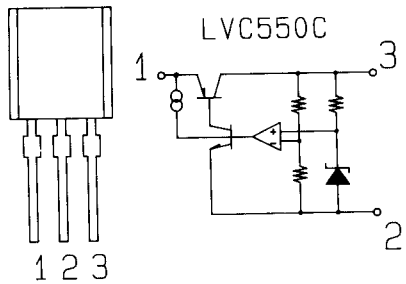
7-2 SERVO IC MN67471 (IC203)

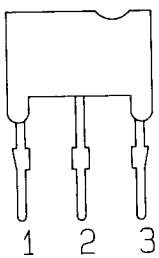
Pin No.	IN/OUT	Signal name	Function
1	IN	TEST MODE	Test Mode "H"
2	IN	C-FG	Capstan FG
3	IN	REF IN	Reference Voltage (2.5V)
4	OUT	REF OUT	Reference Voltage (2.5V)
5	IN	CTL IN R	CTL Clamp (Reverse)
6	-	-	-
7	IN	CTL IN F	CTL Clamp (Forward)
8	OUT	CTL A-OUT	CTL Amp
9	IN	G	CTL GND
10	IN	CTL AC GND	CTL Amp AC GND
11	IN	CTL IN	CTL Amp
12	IN	V_{DD}	V_{DD} (+5V) Analogue
13	-	-	-
14	OUT	CTL OUT	REC CTL
15	IN	V-SYNC IN	V-SYNC (50Hz)
16	IN	PG MM IN	PG Mono Multi
17	IN	V_{DD}	V_{DD} Digital
18	IN	TR MM IN	Tracking Mono Multi
19	IN	G	GND
20	IN	REC CTL CONT	REC CTL Duty Control "L"
21	IN	SD IN	Serial Data
22	IN	SC IN	Serial Clock
23	IN	G	GND "L"
24	IN	CTL IN	Clock
25	-	-	-
26	OUT	D-SP OUT	Drum Speed PWM
27	OUT	D-PH OUT	Drum Phase PWM
28	OUT	HSW OUT(L2)	Head Switching (L2)
29	OUT	HSW OUT(R2)	Head Switching (R2)
30	OUT	HSW OUT(L1)	Head Switching (L1)
31	OUT	HSW OUT(R1)	Head Switching (R1)
32	OUT	HSW OUT(12.5Hz)	Head Switching (12.5Hz)
33	OUT	HSW OUT(25Hz)	Head Switching (25Hz)
34	OUT	C-SP OUT	Capstan Speed PWM
35	OUT	C-PH OUT	Capstan Phase PWM
36	OUT	C-FG OUT	Capstan FG (SP-1484Hz, LP-742Hz)
37	OUT	C-SPEED OUT	Capstan Speed Mode (SL-"L", LP-"H")
38	IN	G	GND
39	IN	D-FG IN	Dram FG (600Hz)
40	-	-	-
41	IN	C-FG 2 IN	Capstan FG 2
42	IN	C-FG 1 IN	Capstan FG 1
43	OUT	C-FG OUT	Capstan FG Amp (SP-1484Hz, LP-742Hz)
44	IN	D-PG IN	Dram PG (37.5Hz)

13. SYSTEM CONTROL TIMING CHART



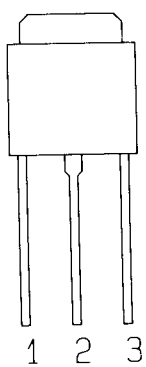
14. LEAD IDENTIFICATION





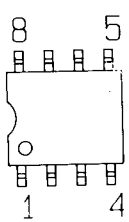
MN1280Q

1 OUT
2 VDD
3 VSS

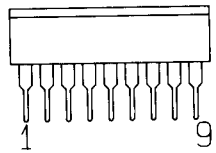


2SA1385

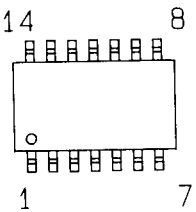
1 BASE
2 COLLECTOR
3 EMITTER



μPC1513G
μPC358G2
BA6993F
BA728F
TA7361AF

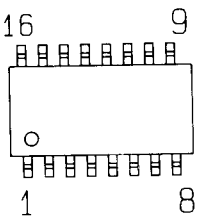


TA7291S

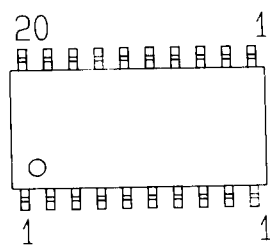


MN74HC74S

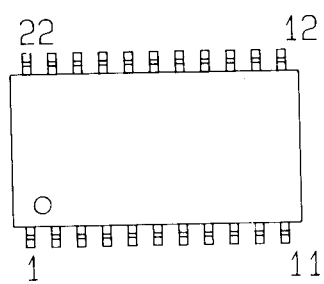
NJU74H74BM



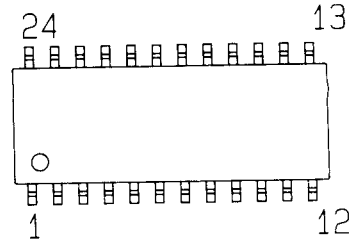
AN2010S MN4053BS
MN3820S NJU4053BM
MN4052BS BU4053BF
NJU4052BM μPC1100G
BU4052BF



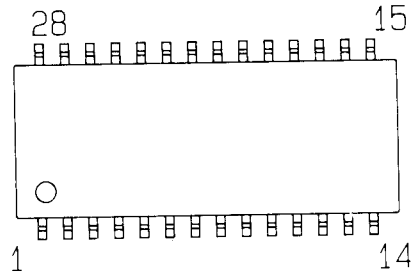
μPD6146G



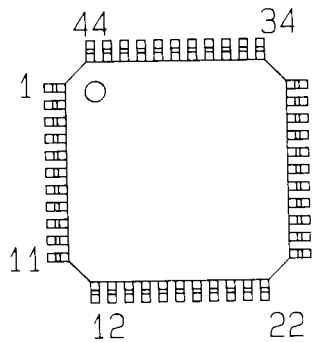
AN3311S



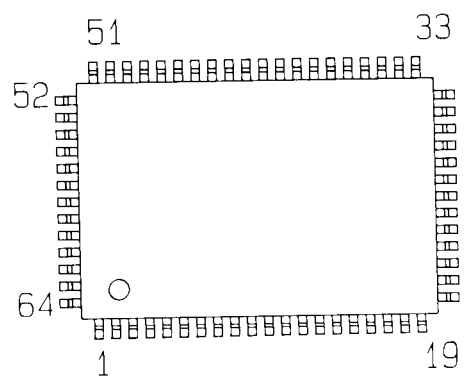
BA6450F
BA5114F



AN2150S AN2450S
AN2250S AN3215NS
AN2350S BA6431F



MN67622F
MN53015XBR
MN67471



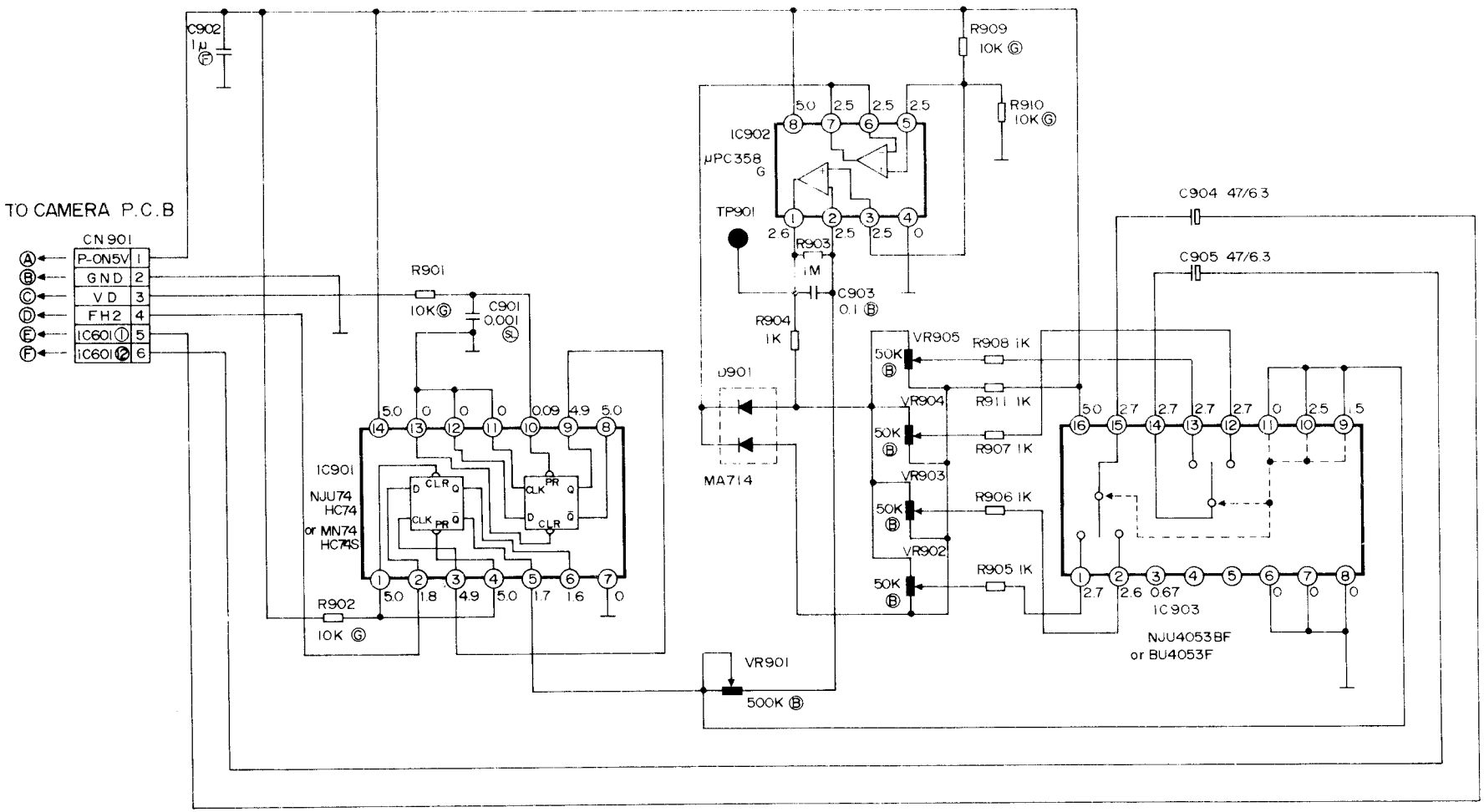
μPD75106G

15. CHIP IDENTIFICATION

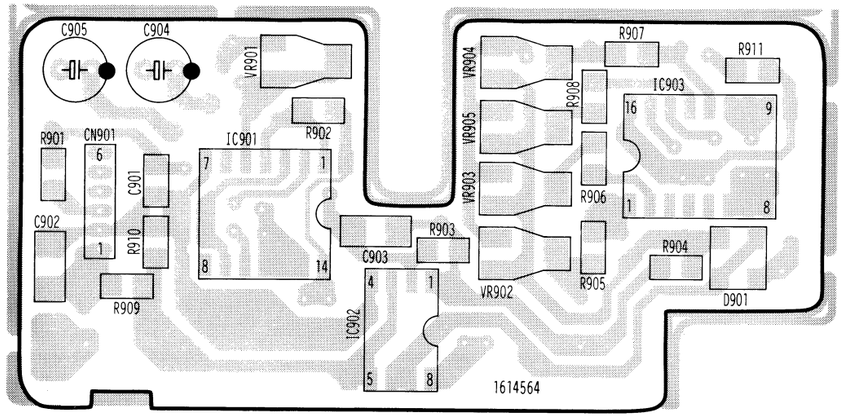
NO	IDENTIFICATION	DISCRIPTION	NO	IDENTIFICATION	DISCRIPTION	NO	IDENTIFICATION	DISCRIPTION	NO	IDENTIFICATION	DISCRIPTION
2SA 1531	F 1.25*2.0		MA141 WK	MT 1.25*2.0		2SK 621	30 1.5*2.9		2SB 1188	BC BR 2.5*4.5	
2SA 1576	FR 1.25*2.0		DTA 114YU	54 1.25*2.0	10K, 47K	MA 3**** OR RD *.*M	**** 1.5*2.9	1NC; ****→RANK; →VOLTAGE	2SD 1766	DB BR 2.5*4.5	
2SA 1577	HP		DAT 143XU	33 1.25*2.0	4.7K, 10K	MA 160	M1D 1.5*2.9		SB 20 -03 P	SC 2.5*4.5	
2SC 3929	S		DTA 144EU	16 1.25*2.0	47K, 47K	MA 714	M1P 1.5*2.9		MA 701A	A 701 3.0*4.0	
2SC 4081	BR		DTC 144EU	26 1.25*2.0	47K, 47K	FMC1	C1 1.6*2.9	4.7K, 4.7K	TC 4S11F	C1 1.6*2.9	1=Vss 4=Vdd
DA 115	AU	2NC	2SA 1462	Y34 1.6*2.9		FMG5	G5 1.6*2.9		TC 4S81F	C2 1.6*2.9	1=Vss 4=Vdd
DA 204U	K		2SC 3735	B34 1.6*2.9		2SB 1132	BA RT 2.5*4.5				

18. SCHEMATIC DIAGRAM

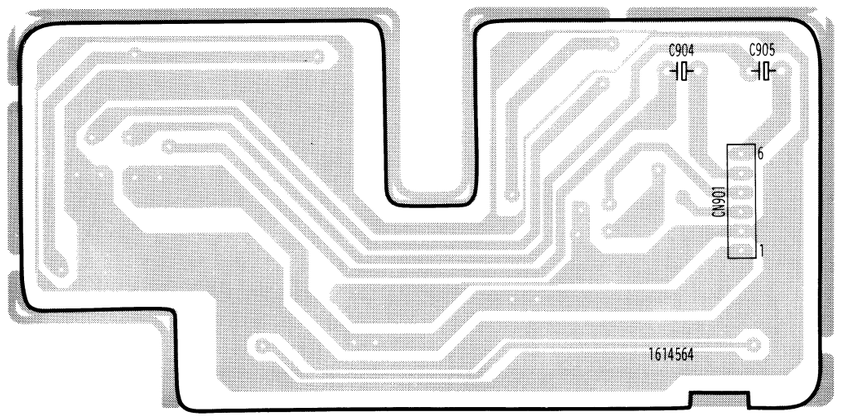
18-1 Camera Sub



11-6-1 Camera Sub PCB (Top View)



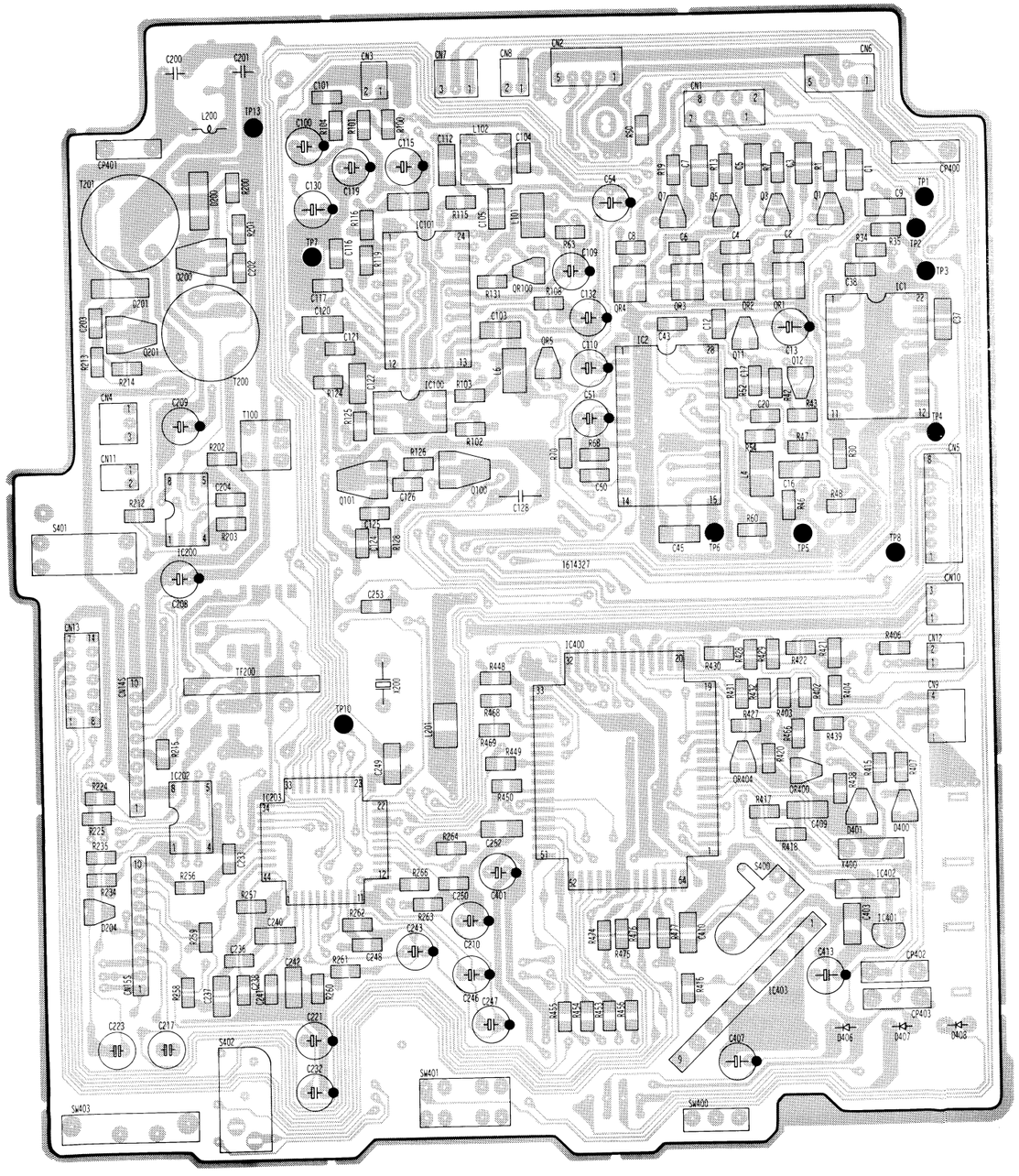
11-6-2 Camera Sub PCB (Bottom View)



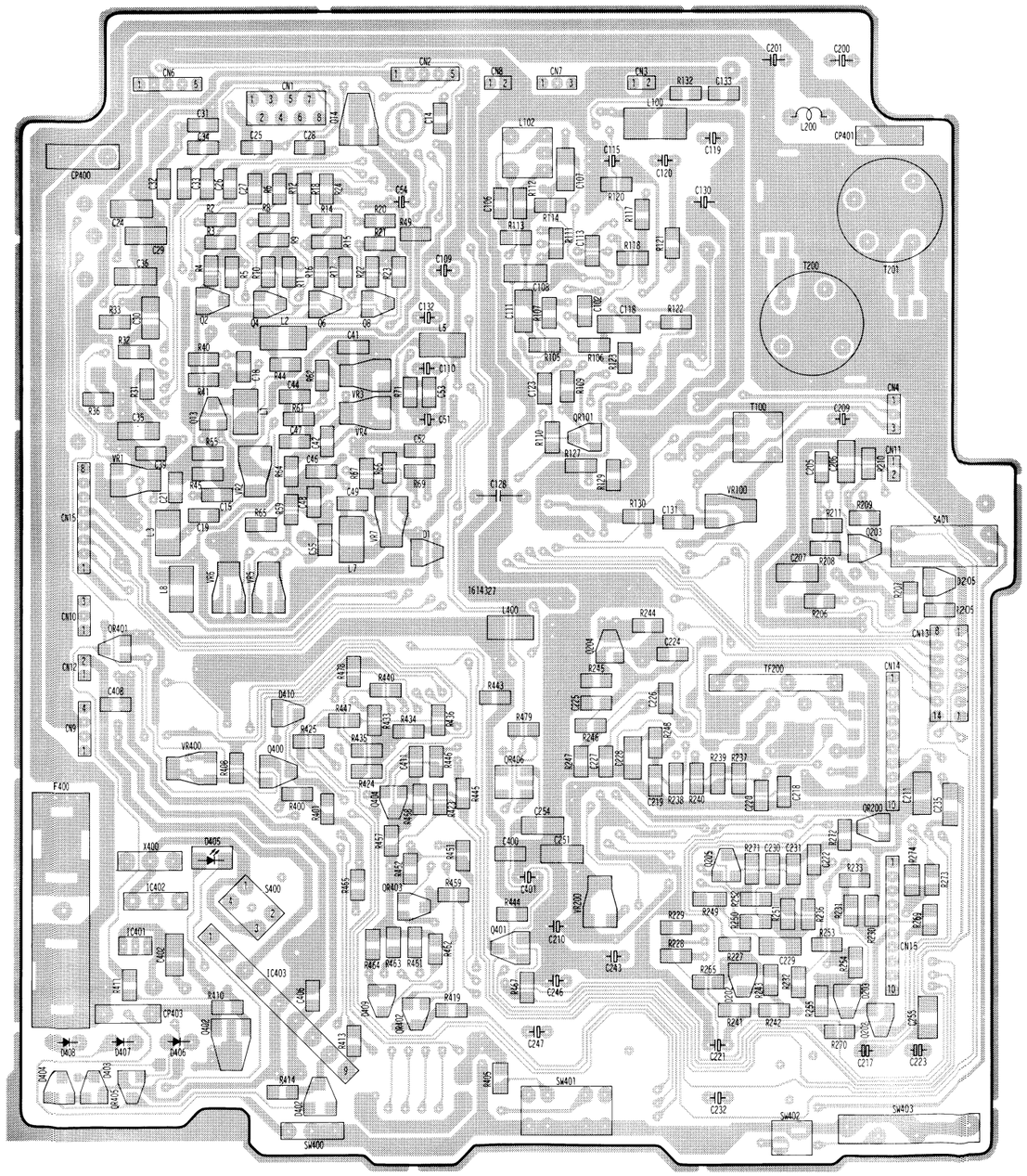
NOTE:
First 25,000 units will have this P.C.B...
The later version will not have it, these may be identified by an 'A' suffix on the gift box.

11. PCB (TOP BOTTOM VIEWS)

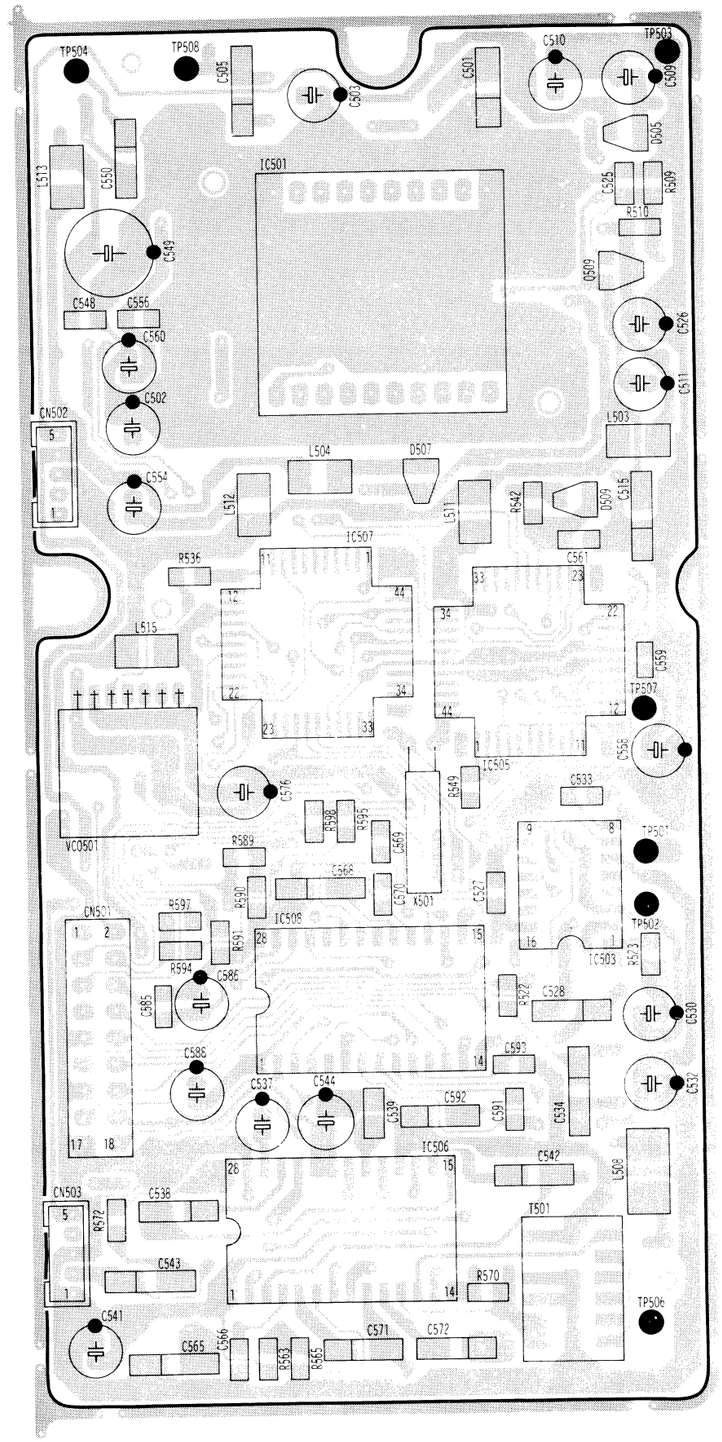
11-1-1 Main PCB (Top View)



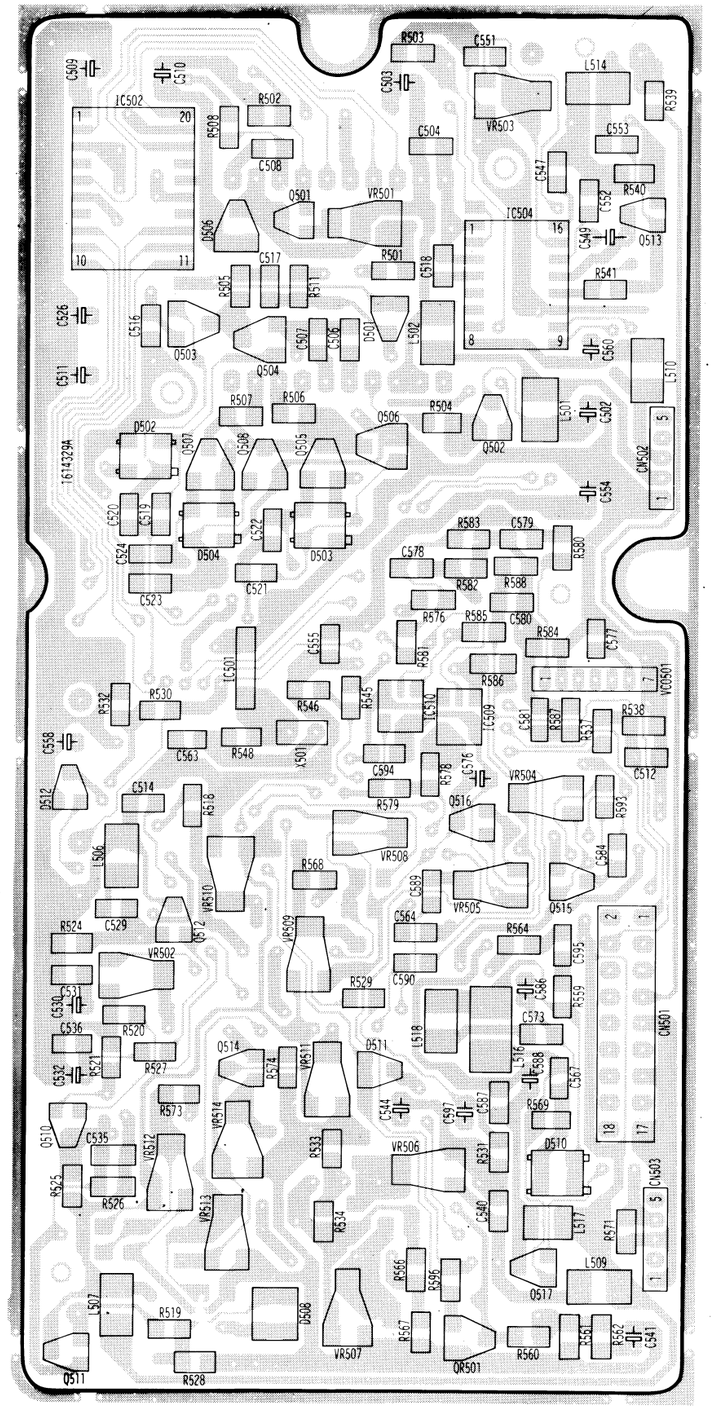
11-1-2 Main PCB (Bottom View)



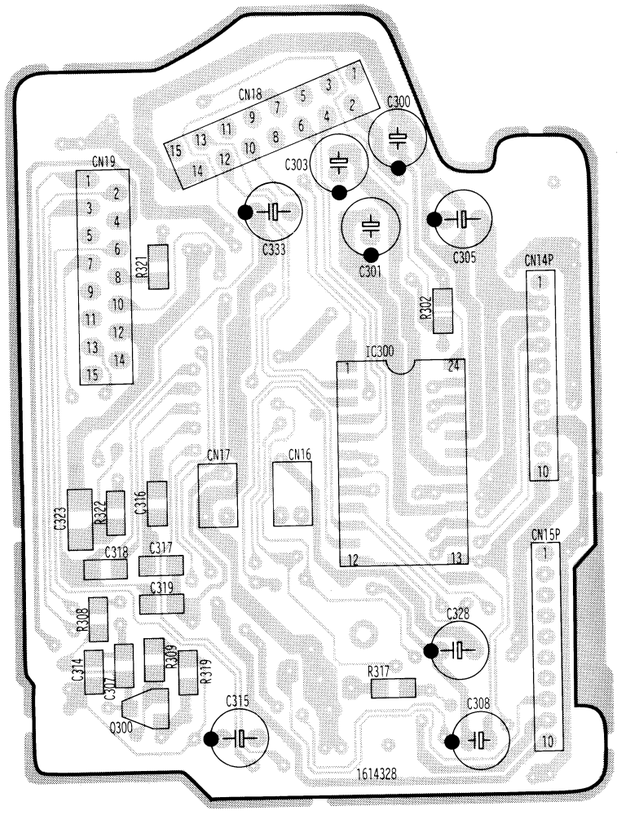
11-2-1 CCD & Encorder PCB (Top View)



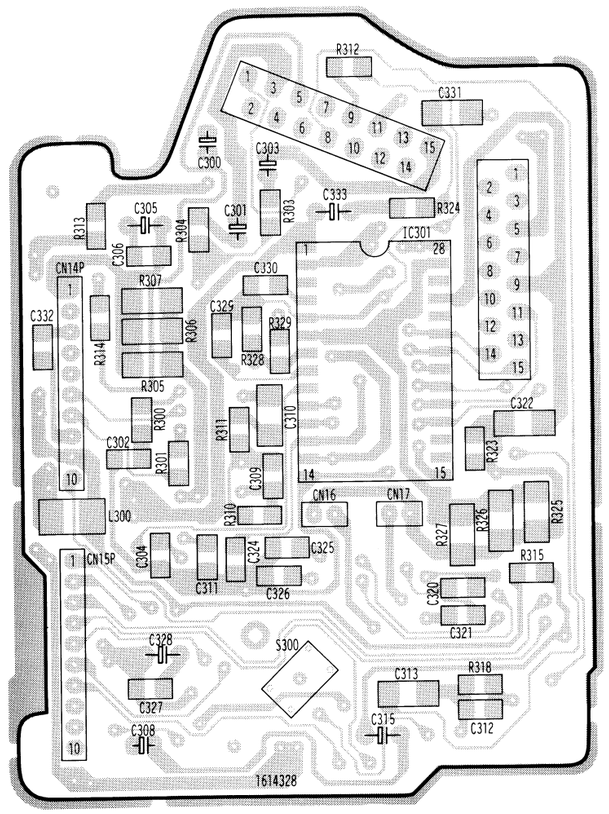
11-2-2 CCD & Encorder PCB (Bottom View)



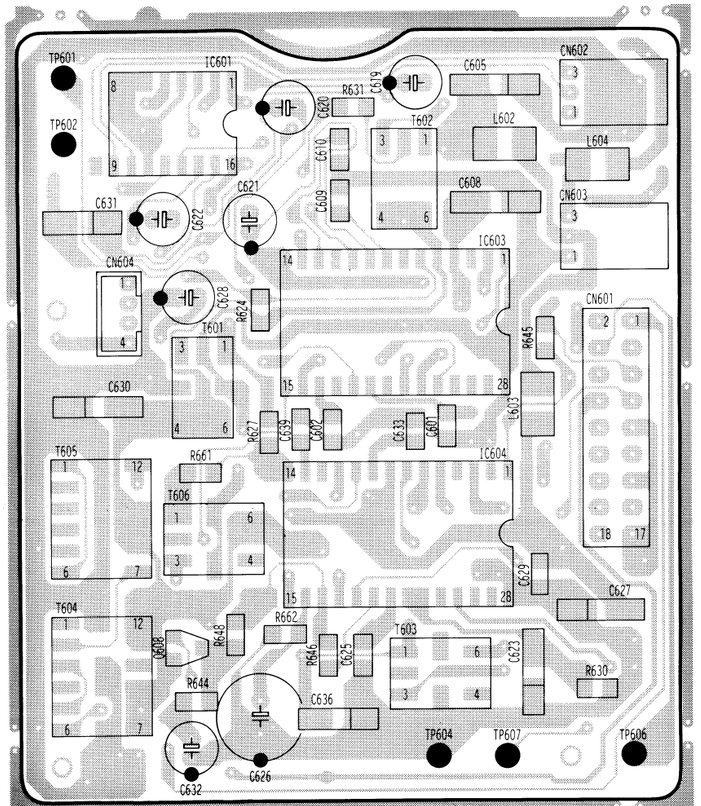
11-5-1 Driver PCB (Top View)



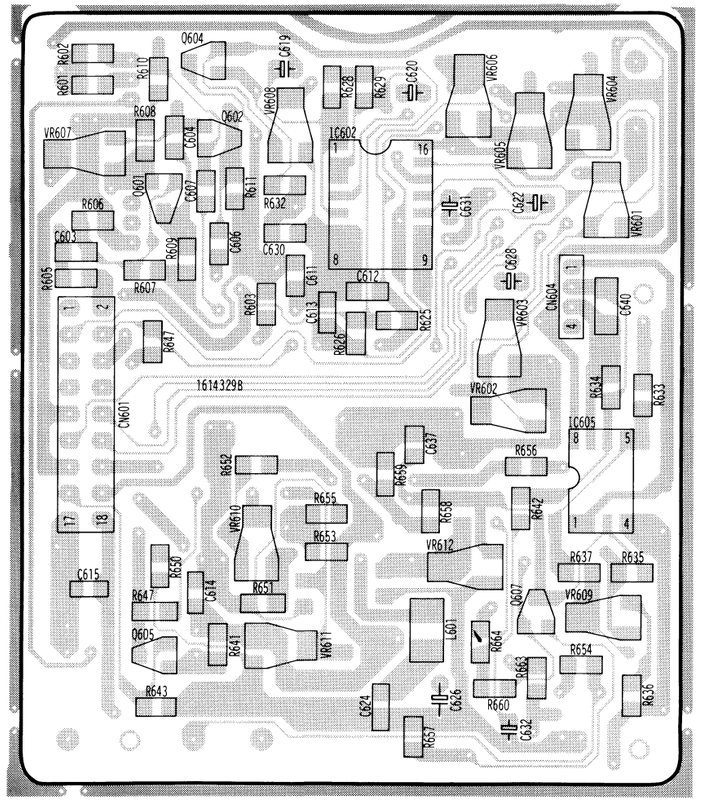
11-5-2 Driver PCB (Bottom View)



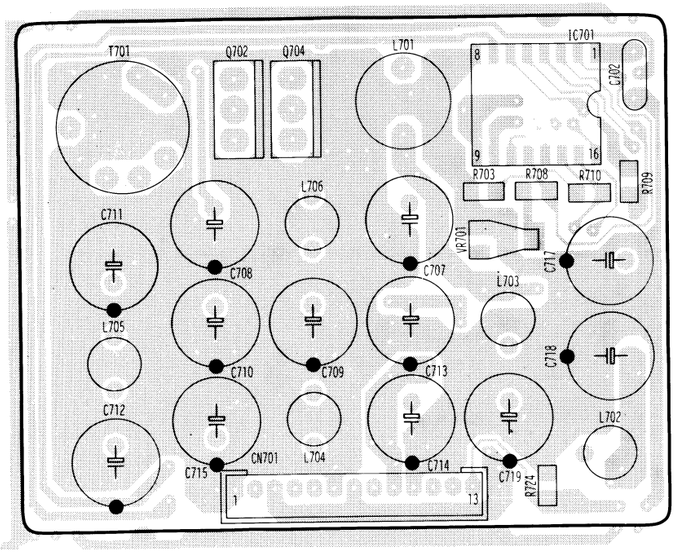
11-3-1 Process PCB (Top View)



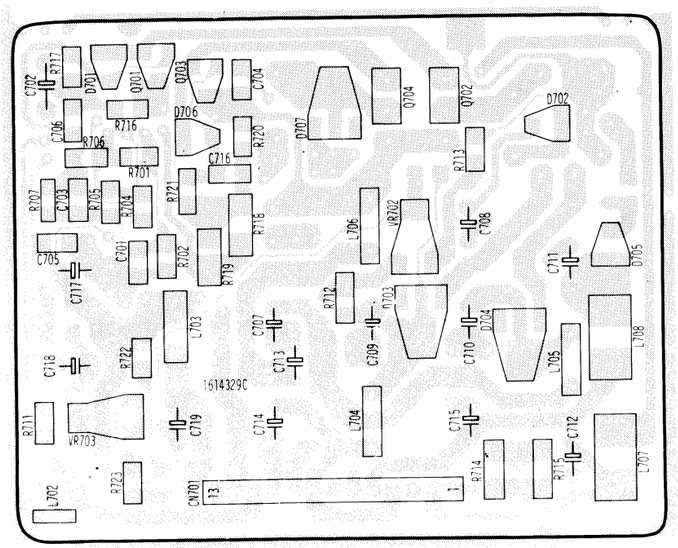
11-3-2 Process PCB (Bottom View)



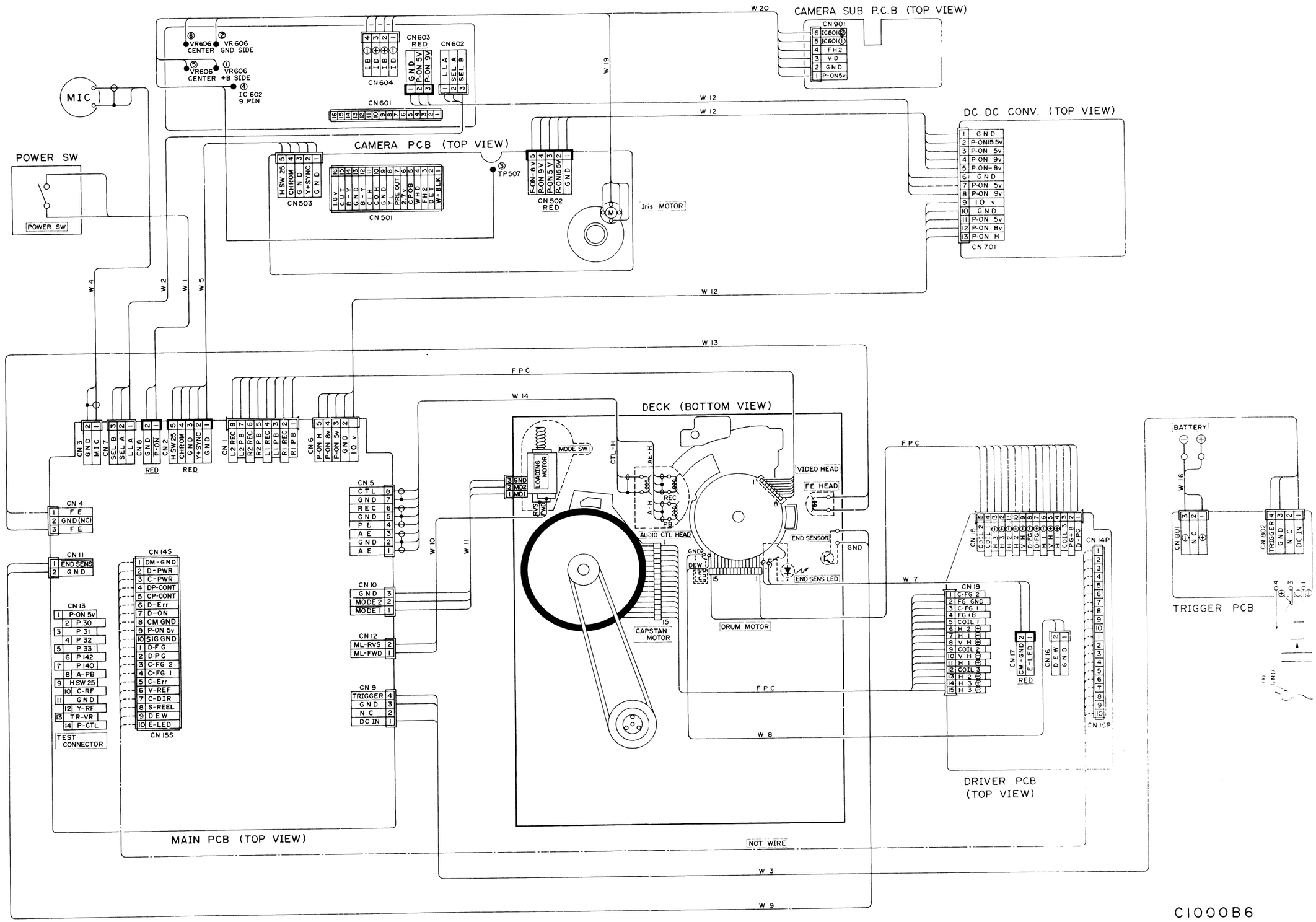
11-4-1 DC-DC CONV. PCB (Top View)



11-4-2 DC-DC CONV. PCB (Bottom View)



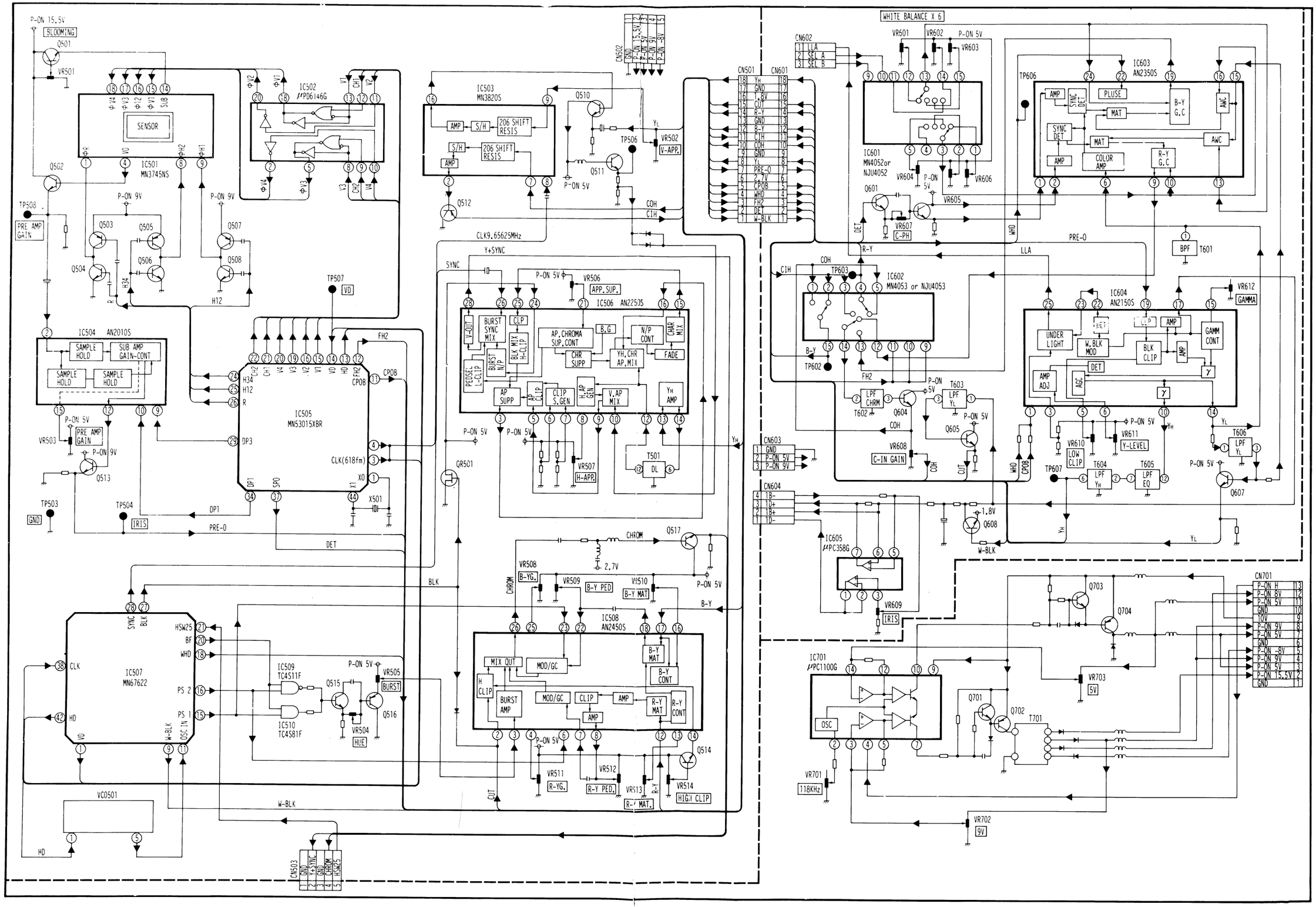
12. WIRING DIAGRAM


CAMERA SUB P.C.B (TOP VIEW)
CN 901
6 IC601②
5 IC601①
4 FH2
3 VD
2 GND
1 P-ON5v
W 20
W 19
W 12
W 12
⑥ VR606 CENTER GND SIDE
② VR606
⑤ VR606 CENTER +B SIDE
① VR606
④ IC 602 9 PIN
MIC
CN604
CN603 RED
CN602
CN601
CAMERA PCB (TOP VIEW)
CN503
CN501
③ TP507
CN502 RED
Iris MOTOR
DC DC CONV. (TOP VIEW)
1 GND
2 P-ON15.5v
3 P-ON 5v
4 P-ON 9v
5 P-ON-8v
6 GND
7 P-ON 5v
8 P-ON 9v
9 10 v
10 GND
11 P-ON 5v
12 P-ON 8v
13 P-ON H
CN 701
POWER SW
POWER SW
W 4
W 2
W 1
W 5
W 13
F P C
W 14
DECK (BOTTOM VIEW)
MODE SW
LOADING MOTOR
CTL-H
A/E-H
A-H
REC
PB
VIDEO HEAD
FE HEAD
AUDIO CTL HEAD
CAPSTAN MOTOR
END SENSOR
END SENS LED
GND
DRUM MOTOR
F P C
W 8
W 7
W 10
W 11
CN 3 GND MIC
CN 7 SEL B SEL A L.A
CN 8 GND P-ON
CN 2 H-SW 25 CHROM GND Y+SYNC GND
RED
RED
CN 1 L2 REC L2 PB R2 REC R2 PB L1 REC L1 PB R1 REC R1 PB
CN 6 P-ON H P-ON 8v P-ON 5v GND 10 v
CN 5 CTL GND REC GND PE AE GND AE
CN 10 GND MODE 2 MODE 1
CN 12 ML-RVS ML-FWD
CN 9 TRIGGER GND N C DC IN
CN 4 1 F E 2 GND(NC) 3 F E
CN 11 1 END SENS 2 GND
CN 13 1 P-ON 5v 2 P 30 3 P 31 4 P 32 5 P 33 6 P 142 7 P 140 8 A-PB 9 H SW 25 10 C-RF 11 GND 12 Y-RF 13 TR-VR 14 P-CTL
TEST CONNECTOR
CN 14S 1 DM-GND 2 D-PWR 3 C-PWR 4 DP-CONT 5 CP-CONT 6 D-Err 7 D-ON 8 CM GND 9 P-ON 5v 10 SIG GND 1 D-F G 2 D-P G 3 C-FG 2 4 C-FG 1 5 C-Err 6 V-REF 7 C-DIR 8 S-REEL 9 D E W 10 E-LED
CN 15S
MAIN PCB (TOP VIEW)
CN 19 1 C-FG 2 2 FG GND 3 C-FG 1 4 FG+B 5 COIL 1 6 H 2 7 H 1 8 V H 9 COIL 2 10 V H 11 H 1 12 COIL 3 13 H 2 14 H 3 15 H 3
CN 17 CM-GND E-LED RED
CN 16 D E W GND
CN 14P
DRIVER PCB (TOP VIEW)
NOT WIRE
W 3
W 9
BATTERY
W 16
CN 801 N C
CN 802 TRIGGER GND N C DC IN
TRIGGER PCB

C1000B6
PAL CAM CORDER

6. BLOCK DIAGRAM

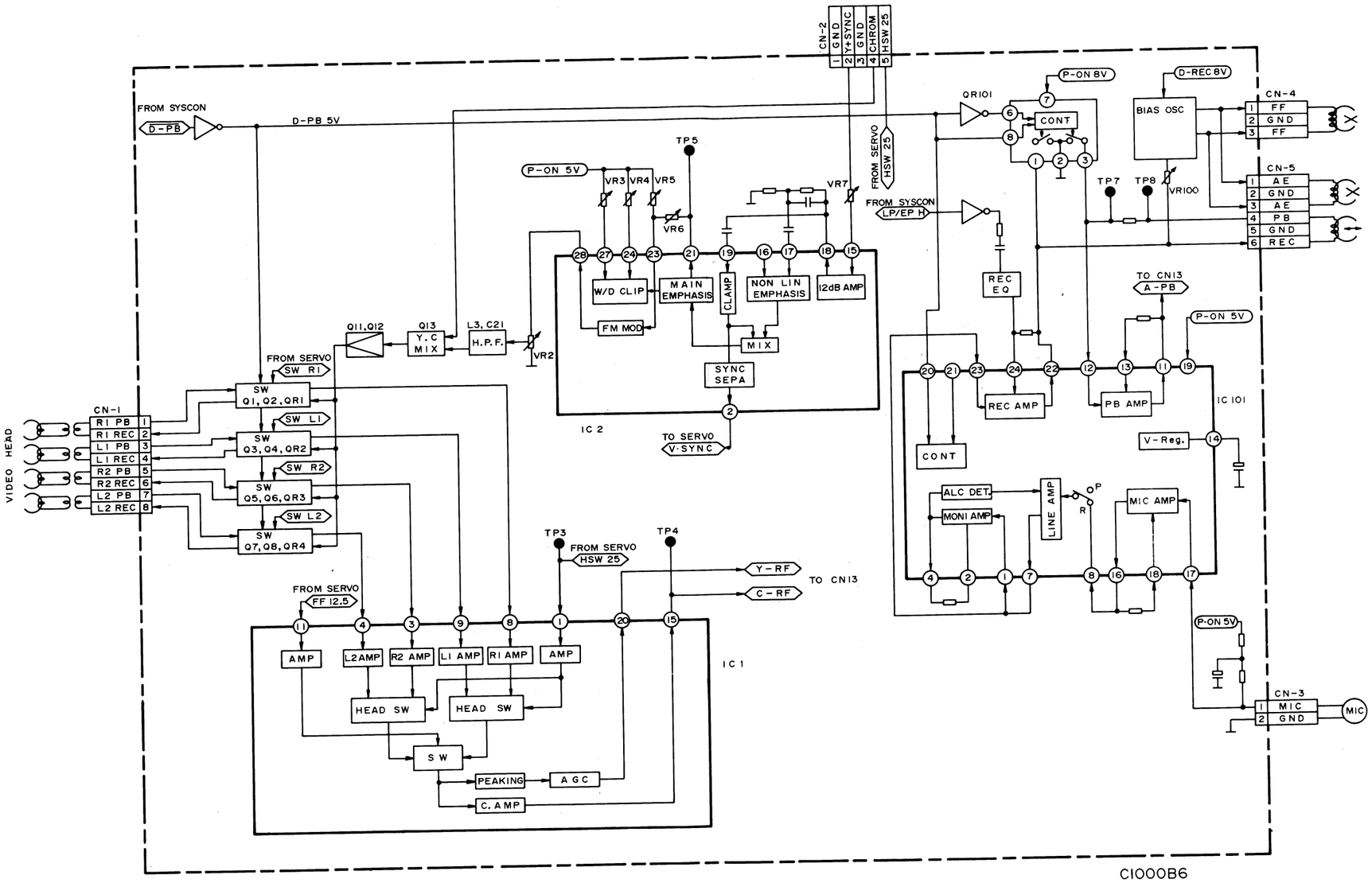
6-1 Camera



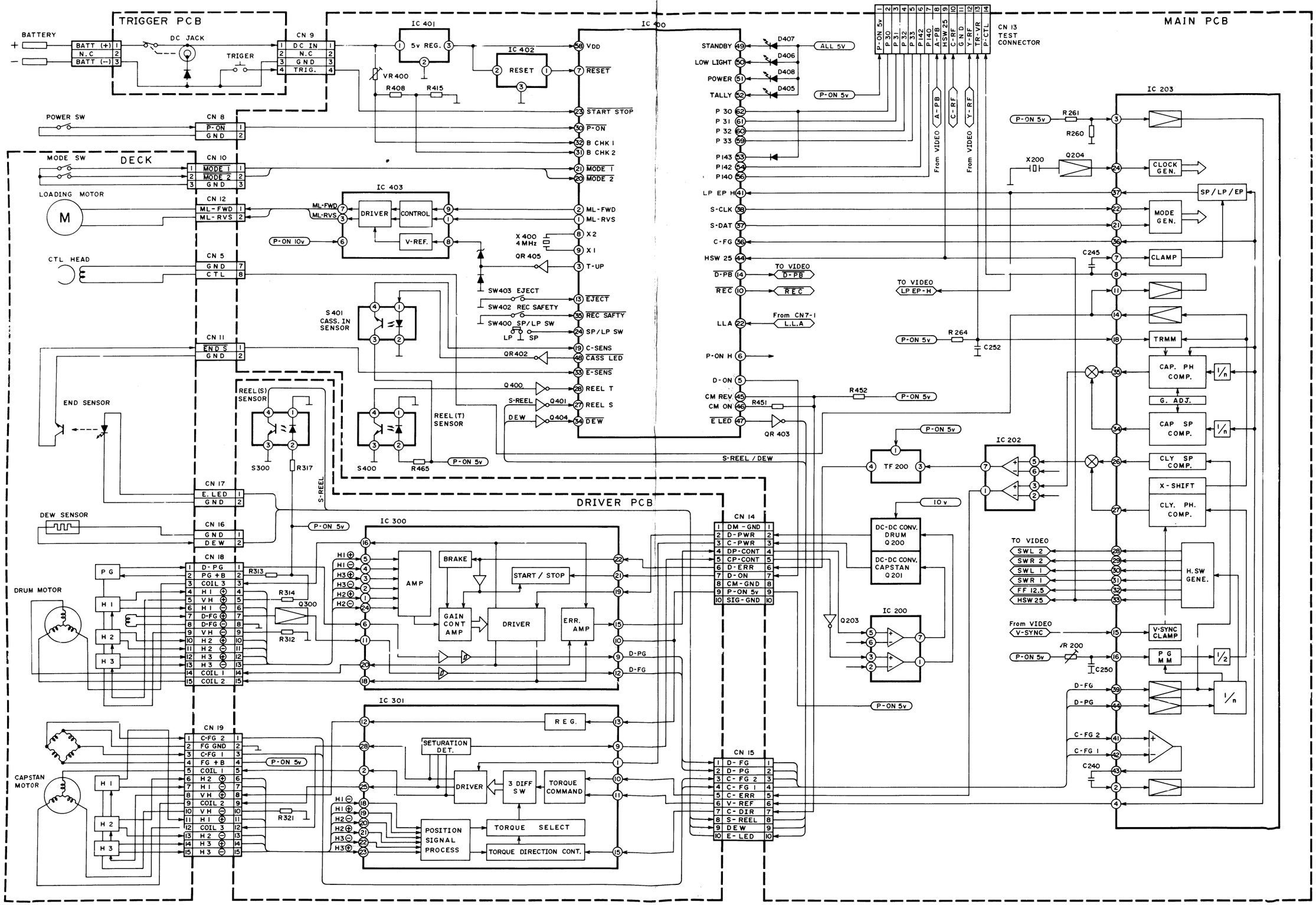
6-1

C1000R6

6-2 Video/Audio

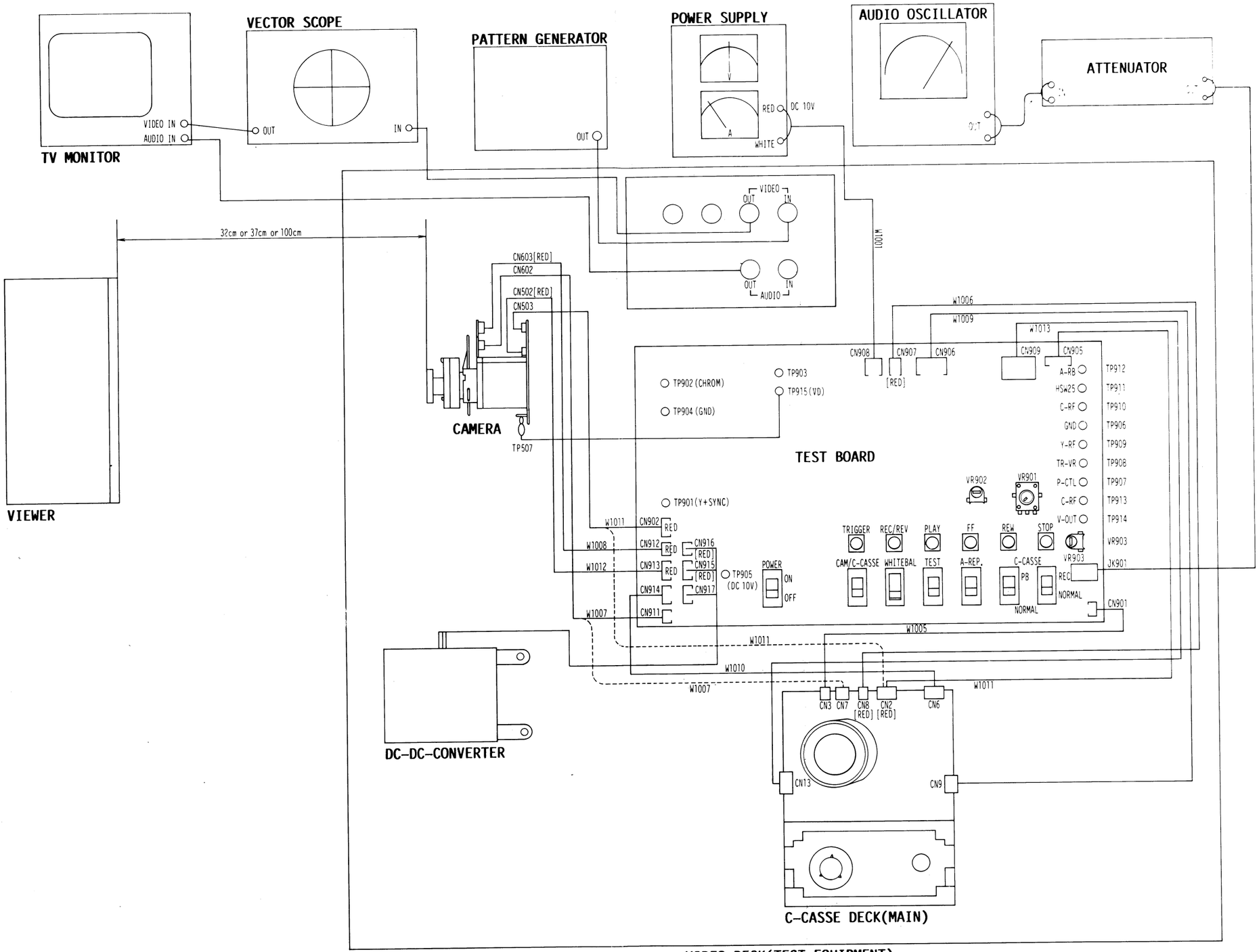


6-3 Servo/System Control



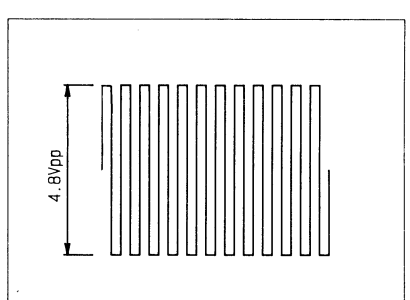
8. ALIGNMENT INSTRUCTIONS

8-1 Video Deck (Test Equipment) Wiring



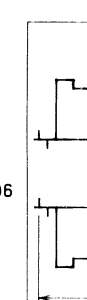
freq

TP501



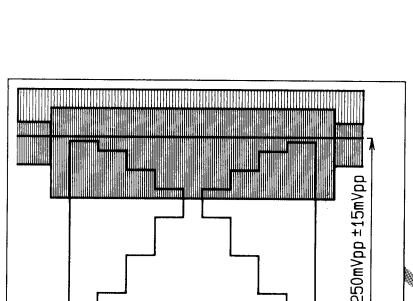
V-App

TP506



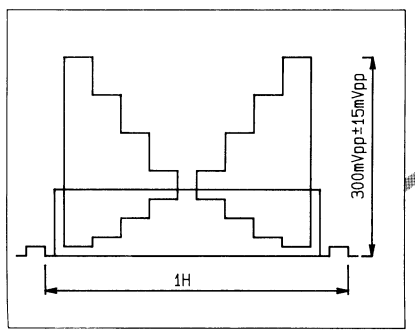
Pre-AMP

TP508

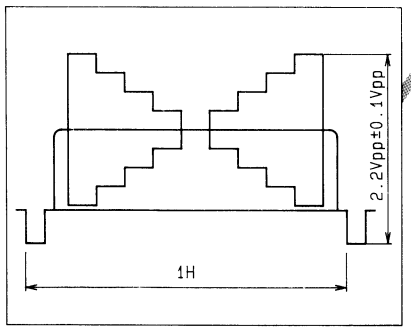


IRIS

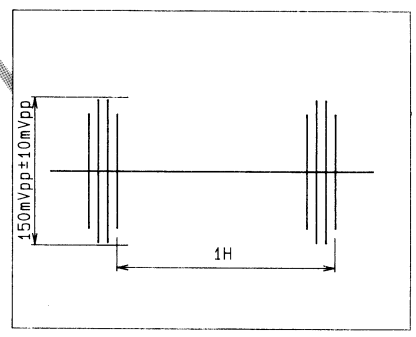
TP504



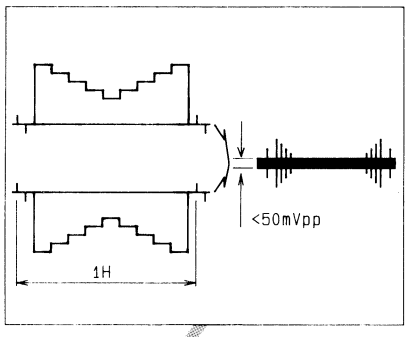
AMP



BURST



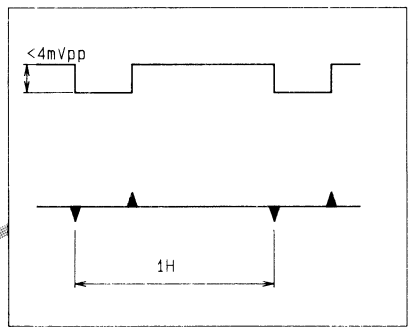
WARNING:
Replacement parts which special safety characteristics are identified by ⚠ showing on this schematic diagram. Replace these critical componemts with recommended replacement parts. Don't degrade the safety of this set through improper servicing. Service personnel to make leakage current or resistance measurement to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

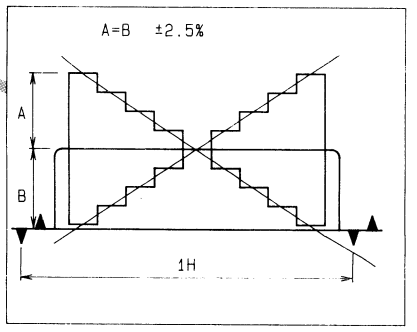


CCD BLOCK

PROCESS BLOCK

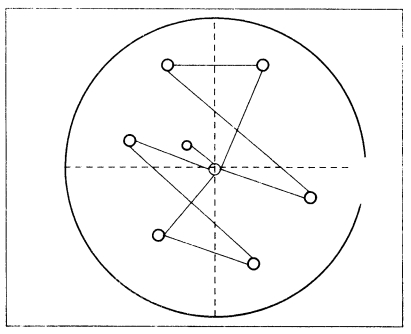
DC/DC CONV BLOCK





re identified by ⚠ showing
mponemts with recommended
set through improper servicing.
rance measurement to determine
he supply circuit before returning

NOTES: 1. All resistance values are indicated in ohm (K = 10^3, M = 10^6)
2. All capacitance values are indicated in μF (P = 10^{-6} μF).
3. All voltage are DC measured with SSVM (Z =>10K ohm) from point indicated to chassis grount under recording mode with lens cap.



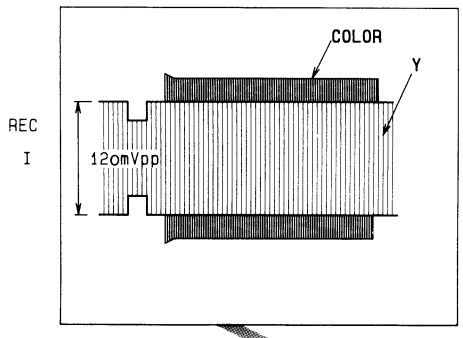
CCD OUT

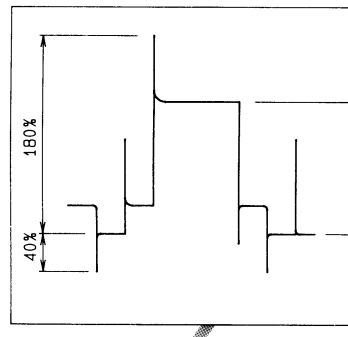
——— Luminance

——— Chrominance

- - - - - - - - - - B-Y

——— - ——— - ——— R-Y

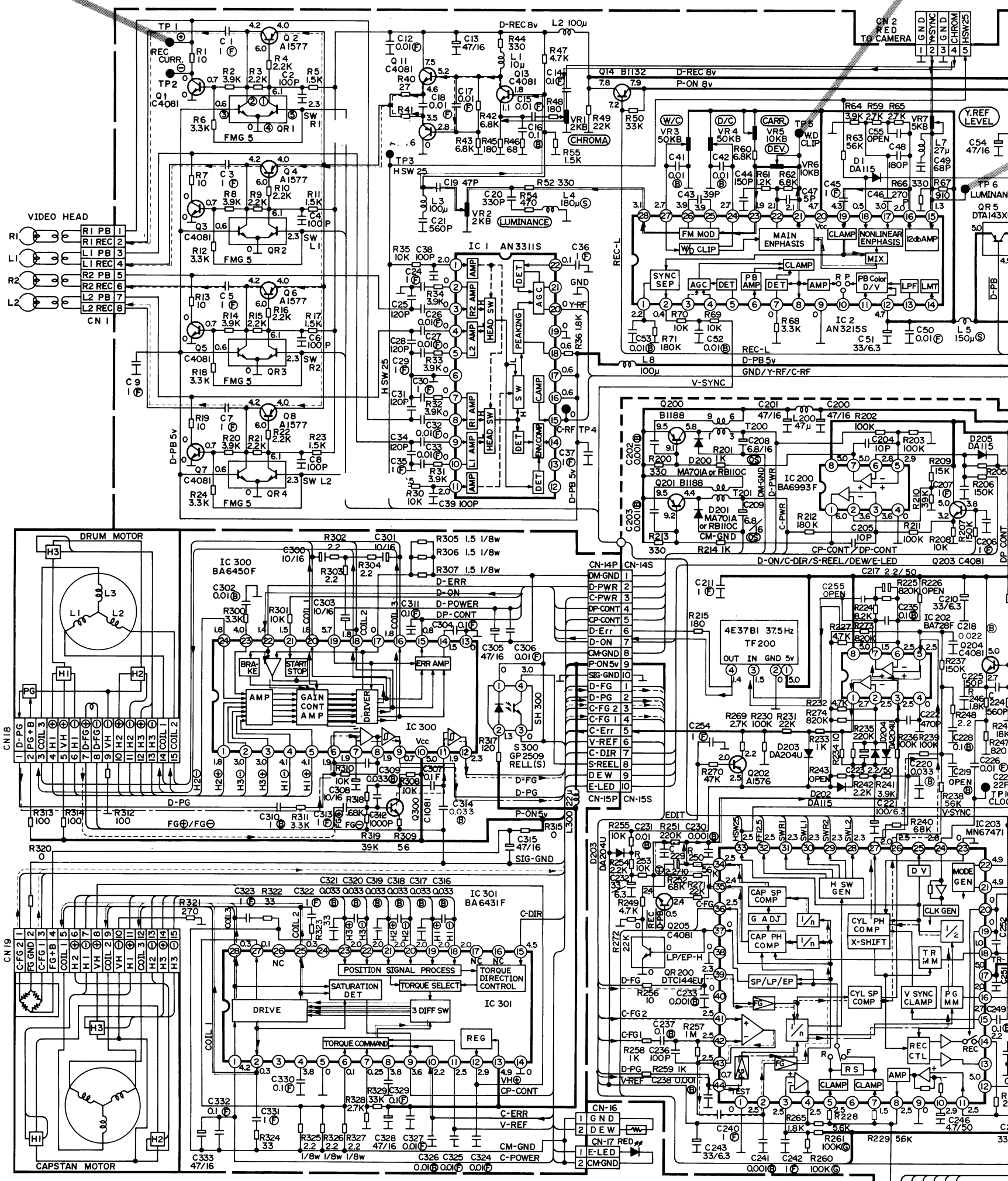




Chrominance

Luminance

Luminance + Chrominance



WARNING : Replacement parts which special safety characteristics are identified by ⚠ showing on this schematic diagram. Replace these critical components with recommended replacement parts. Don t degrade the safety of this set trough improper servicing. Service personnel to make leakage current or resistance measurement to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

NOTES : 1. All resistance values are indicated in ohm (K = 10^3, M = 10^6).
2. All capacitance values are indicated in μF (P = 10^{-3}μF).
3. Voltages are measured with SSVM (Z : > 10K ohm) from point indicated to chassis ground at REC Mode with CAMERA LENS CAP.

CAPSTAN Speed

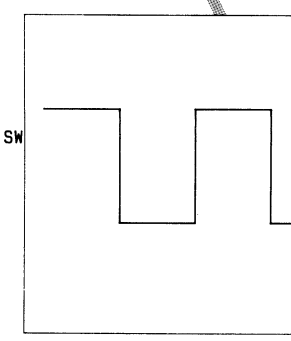
CAPSTAN Phase

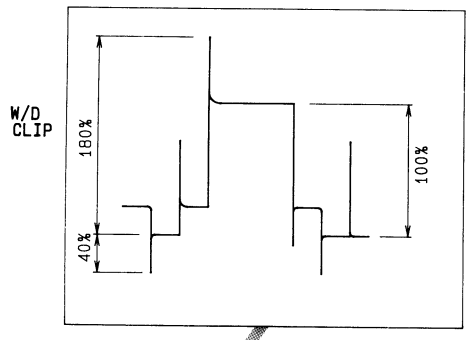
CAPSTAN Err

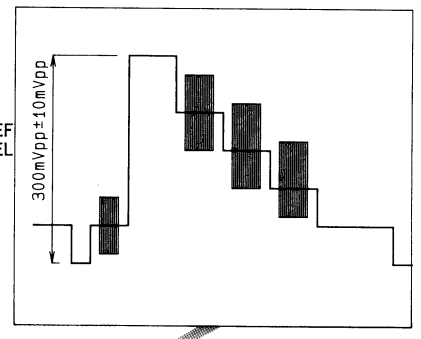
DRUM Speed

DRUM Phase

DRUM Err







AUDIO

CN 2 RED TO CAMERA

D-REC 8v
P-ON 8v
D-PB 5v
LP /EP H
L6 100µ
Y.REF LEVEL
TP 5 W.D CLIP
TP 6 LUMINANCE
QR 5 DTA143XU
D-PB
P-ON5v
L101 100µ
IC101 BA5114F
L5 150µ(S)
IC 2 AN3215S
REC-L
GND/Y-RF/C-RF
V-SYNC
FM MOD
W/D CLIP
MAIN ENPHASIS
CLAMP
NONLINEAR ENPHASIS
12dbAMP
MIX
AGC
DET
PB AMP
AMP
PB Color D/V
LPF
LMT
IC 200 BA6993F
IC 202 BA728F
IC 203 MN67471
IC 400 µPD75106G
TF200 4E37B1 37.5Hz
X200 AT-49 4.433619MHz
D-ON/C-DIR/S-REEL/DEW/E-LED
CP-CONT/DP-CONT
Q203 C4081
D-ON
C-PWR
DM-GND
D-PWR
CM-GND
DP CONT
A-PB/C-RF/GND/Y-RF
CTL GND
CTL
D-ON D-PB/REC-L
H SW GEN
CAP SP COMP
CAP PH COMP
G ADJ
CYL PH COMP
X-SHIFT
CLK GEN
TR MM
CYL SP COMP
V SYNC CLAMP
PG MM
SP/LP/EP
REC CTL
CLAMP
AMP
R S
TEST
DV
MODE GEN
S-CLK
S-DAT
C-FG
HSW25
SWRL
SWL1
SWR2
SWL2
FF12.5
TR-VR
VR200 200K
(PB TIME)
REC
P-CTL
TR-VR
Y-RF
GND
C-RF
HSW25
A-PB
P140
P142
P33
P32
P31
P30
P-ON5v
CN 13 14 P TEST
A-PB
CTL GND
CTL
10v
P-ON 5v
P-ON 8v
L400 100µ
QR 400 DTC144EU
QR 404 DTC144EU
QR 100 DTC144EU
QR 101 DTA144EU
IC 100 TA7361AF or µpc1513G
PB ON
EE ON
REEL(T) GP2S09B
REEL(S) GP2S09B
S 400 SH400
Q 400 2SK621
Q 401 2SK621
E.SENSOR
REC-L
SW 400 SP/LP SW
SW 402
SW 403 EJECT SW
EJECT
SAFETY SW
REC
IC 401 5v REG LVC550C
IC 402 MN1280Q
IC403 TA7291S
CONTROL / S.S.D
DRIVER
V-REF
NC
QR 400 DTC144EU
QR 401 DTC144EU
QR 402 DTA114YU
QR 403 DTA114YU
QR 404 C4081
QR 405 DTC144EU
QR406 FM CI
D 410 DA115
D 409 DA115
D 401 MA3056 or RD5.6MB
D 400 DA115
D 403 DA204U
D 404 DA204U
D 202 DA115
D 203 DA204U
D 205 DA115
D 201 MA701A or RB110C
D 200 MA701A or RB110C
Q 202 A1576
X400 CST4.00MGW EF0-FC4000
WHITE BALANCE SW
TP 7 BIAS ⊖
TP 8 BIAS ⊕
TP 13 GND
BATT.DOWN
VR400 20KB
T 100 BIAS
OSC TRANS
S401 CASS SENSOR GPIS52
F 400 125V(4A)
CP401 ICP-F20
CP400 ICP-F25
CP-402 ICP-F20
CP403 ICP-F20
CN-3 MIC
CN-4 FE HEAD
CN-5 AE HEAD
AUDIO HEAD
CTL HEAD
CN-6 TO DC/DC CONV
CN-7 TO CAMERA
CN-8 RED TO POWER SW. ON OFF
CN-9 DC JACK
TRIGGER SW
CN-10 TO MODE SW
CN-11 E.SENS
CN-17 RED E.LED
TO DRIVER PCB
CN-12 TO LOADING MOTOR
P ON H
D-ON
CUE
T-UP
ML-FWD
ML-RVS
REV
FWD
E-SENS
E-LED
REC, D-PB
CASS LED
DEW
T-UP
BATT. (+) (−)

9PIN	1PIN	7PIN	3PIN	MODE
L	L	OPEN	OPEN	STOP
H	L	H	L	FWD LOAD
L	H	L	H	RVS UNLOAD
H	H	L	L	BRAKE

L: 0 ~ 0.8v
H: 3.5 ~ 5.5v

RF SW

indicated in ohm (K = 10^3, M = 10^6).
are indicated in µF (P = 10^{-3}µF).
with SSVM (Z: > 10K ohm) from point
and at REC Mode with